BELLSOUTH TELECOMMUNICATIONS, INC.

BEFORE THE

THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

DOCKET NO. 2003-326-C

SURREBUTTAL TESTIMONY OF

DR. DEBRA J. ARON

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME.

A. My name is Debra J. Aron.

Q. ARE YOU THE SAME DEBRA J. ARON WHO FILED DIRECT AND REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. My surrebuttal testimony rebuts the economic arguments made by Mr. Wood (AT&T), Dr. Bryant (MCI), Mr. Klick (AT&T), Mr. Bradbury (AT&T), and Dr. Loube (for Staff) on a number of topics.

Q. PLEASE SUMMARIZE YOUR SURREBUTTAL TESTIMONY.

A. The arguments that I respond to typically are based on one of several themes. The first reflects a desire to re-write the TRO more to the witnesses' liking, or re-argue some of the positions that were considered and rejected by the FCC in its determination of its rules. For example, Dr. Bryant and Mr. Wood counsel this Commission to simply ignore the FCC's requirement to examine a "potential deployment" analysis. Mr. Wood argues that if potential deployment indicates "no impairment" in markets that do not pass the triggers tests, the results must be wrong, because we do not observe facilities deployment sufficient to pass the triggers tests, and because we have observed failure in the past. Besides being contrary to the directions provided by the FCC, and totally irrelevant to the task at hand, such arguments fail to consider the economic fact that CLECs select their method of competitive entry, such as UNE-P or UNE-L, *not* solely on the basis of unimpairment, which is the topic of this proceeding, but also on the basis of what is most profitable to the CLEC given the options available. It is therefore unreasonable from an economic perspective (as well as contrary to the plain

language of the TRO) to rely solely on actual deployment as a basis for determining unimpairment.

A second set of criticisms involves the structure of the BACE model. For example, there are subjective declarations by one witness that the model is overly sensitive, and by another witness that it is not sensitive enough. Such subjective criticisms are, of course, without merit. In other instances, Mr. Stegeman demonstrates that the basis of the criticisms is the result of a misinterpretation by the witness of the model structure or how one goes about implementing an assumption change, or some combination of these. As a result, nothing that I have seen, replicated, or attempted to replicate changes any of my conclusions regarding the markets in which we have found that CLECs are "unimpaired" without unbundled local switching, and to a large extent, these runs demonstrate that my results are robust to a variety of assumption changes.

The third general area of complaint pertains to the parameter estimates that I provided to the BACE model. In determining these estimates, I recognized that the FCC is very clear that the potential deployment analysis should be based on an efficient CLEC using the "most efficient network architecture available" and executing the "most efficient business model." (TRO 517.) The FCC also notes that it is appropriate to "weigh[ ] advantages and disadvantages" (TRO 517) that may be available to the efficient CLEC.

While these requirements provide substantial discretion, my approach is very conservative. We model a generic, new CLEC that seeks to enter the market without any customers or any real-world advantages such as a brand name. My parameter estimates, such as those regarding customer acquisition costs, General and Administrative ("G&A") expenses, and churn are developed from existing ILEC, CLEC, or industry data, which means that these estimates may be more conservative than what an efficient CLEC could attain. Moreover, where appropriate data were available, I based my estimates on averages and midpoints rather than on best-of-class (or better-than-existing) ILEC, CLEC, or industry figures, even though these best-in-class figures might arguably better represent the prospects of an efficient CLEC executing the most efficient business model.

The criticisms of my parameter value estimates either point to actual CLEC performance, or they seek to perversely handicap the hypothetical CLEC, depending on whichever contributes toward a finding of "impairment." For example, several of the witnesses claim that the assumed market penetration in the first year for residential customers is too high. Notwithstanding the fact that they misinterpret how the BACE model uses this data (it essentially cuts the market penetration in half when computing revenues for the year), even a casual glance at reality would demonstrate that real-world firms already have an existing base of UNE-P customers and that they do not start from a base of zero, as the modeled

CLEC does. According to the FCC, penetration in South Carolina is at least 8 percent. (I say "at least," because the FCC's estimate understates the market share, as I explain at length later in my testimony.) Consistent with the FCC's directions, we could have modeled a CLEC that begins with some level of UNE-P-based customers (and revenues). Instead, we adopted the conservative approach that the CLEC starts with no customers at all. Witnesses such as Mr. Wood and Mr. Klick essentially argue that this is not conservative enough for them. As I have noted, the fact that BACE models a startup reflects substantial conservatism on our part. We legitimately could have modeled a CLEC as an existing, going concern with an existing base of UNE-P customers. That we did not means that there may be more real-world "non-impairment" than what is indicated by our BACE results.

As another example, there are criticisms of my recommended residential customer acquisition costs. These costs were developed from *actual CLEC expenses* as reported to investment analysts. Dr. Bryant recommends that customer acquisition costs be developed partly on the basis of what *wireless* companies incur, even though these costs may include the cost of the handset. This is unreasonable. In addition, as I describe later in my testimony, the use of actual CLEC data to determine customer acquisition costs is conservative because UNE-P-based CLECs can have the incentive to spend inefficiently high amounts to acquire customers.

There are also criticisms of the prices that I recommend for use in the BACE model. The FCC foresaw that price would be a contentious issue, and instructed us to base the modeled prices on existing prices. I therefore developed prices on the basis of existing CLEC bundle prices and discounts from BellSouth's prices for *a la carte* services. Consistent with the FCC's directions, we kept prices constant over the entire time horizon of the model. Although not required by the TRO, to be consistent, we kept costs constant as well, and did not adjust them downward for any gains in productivity that an efficient CLEC might arguably attain. In another example of trying to re-write the TRO, several of the witnesses recommend that we put prices on a downward trend based on speculation about the future (though none noted or complained about our declining to impose a productivity factor on costs over time).

In sum, the model that we present takes a cautious, conservative approach to switch-based CLEC entry. The services that the CLEC is assumed to offer are services that CLECs offer today, and the prices are based on prevailing prices. The costs associated with customer acquisition, G&A, and the like also are based on industry data. Our approach implements the FCC's requirement to consider an efficient CLEC, but it does not come close to testing the limits of that requirement. Our results therefore should provide the Public Service Commission of South Carolina ("SCPSC" or "Commission") with a reasonable indication of the

prospects for successful economic entry by a switch-based CLEC in the BellSouth territory in South Carolina.

Q. HOW IS YOUR SURREBUTTAL TESTIMONY ORGANIZED?

A. In section II, I respond to interpretations that other witnesses seek to ascribe to the TRO. In section III, I respond to issues related to competition. In section IV, I respond to criticisms and misrepresentations of the operations of the BACE model. In section V, I respond to testimony regarding the implementation of the "efficient CLEC" requirement of the TRO. Finally, in section VI, I respond to criticisms of the various parameter values that I provided in the BACE model.

II. REBUTTAL OF ISSUES RELATED TO THE INTERPRETATION OF THE TRIENNIAL REVIEW ORDER

Q. DR. ARON, PLEASE GENERALLY DESCRIBE THE CONTENTS OF THIS SECTION OF YOUR TESTIMONY.

A. Several of the witnesses offer recommendations that amount to re-writing the requirements of the TRO. I will discuss why these recommendations are in error and should be rejected.

Q. MR. WOOD ARGUES THAT THE "POTENTIAL DEPLOYMENT" ANALYSIS CAN IDENTIFY CAUSES OF IMPAIRMENT, BUT THAT IT MAY NOT BE VALID TO DETERMINE WHETHER THERE IS ANY IMPAIRMENT. (WOOD REBUTTAL 17-18.) PLEASE COMMENT.

A. Mr. Wood's argument is directly contrary to the express language of the FCC's rules and the intent of its TRO. Mr. Wood repeats a similar erroneous argument that Mr. Gillan made in his direct testimony. (Gillan Direct 17-19.) The erroneous argument is that if there is insufficient actual deployment to satisfy the triggers test, any potential deployment analysis that indicates "no impairment" must, in some way, be flawed. As a result, the business case approach can only be used to identify possible reasons for impairment, and not impairment itself. (Wood Rebuttal 8-9, 17-18.) This is nonsense.

A plain reading of the FCC's rule (51.319(d)(2)(iii)(B)) and paragraphs 515 to 520 of the TRO (which describe the factors that the state commission should consider in its potential deployment analysis) shows that there is no support for Mr. Wood's argument. It is clear from those paragraphs and from the rules themselves that the purpose of the potential deployment test is to help the Commission identify markets where CLECs are not impaired without access to the switching UNE precisely in situations where the triggers are not met.

There is a valid economic reason that the FCC provided for such a test. A CLEC's decision about switching deployment depends not only on what is feasible, but also on what is most profitable under the relevant market conditions. The rational CLEC selects the most profitable method of entry from the set of feasible methods. Thus, while the existence of actual CLEC self-deployment (or wholesaling) of switching clearly demonstrates that there is no impairment in that geographic market, *an observed lack of deployment sufficient to satisfy the triggers test cannot by itself indicate that there is impairment* for two reasons. First, as I explained in my rebuttal testimony, failure to satisfy the triggers test does not mean that there is no facilities-based competition. For example, a market may have two, robust switch-based CLECs serving the mass market and others serving the enterprise market. Such a situation would fail the triggers test. The FCC noted that the existence of such competition is nevertheless relevant to the analysis of impairment. Second, a rational CLEC may select UNE-P, and the use of the ILEC's network, *even if there is no impairment associated with self-provisioning*.

For example, suppose a CLEC could generate a net present value (discounted profits) of $100 using its own infrastructure to enter a market, but that it can generate $200 of value using the incumbent's infrastructure. The positive NPV from self-provisioning means, by definition, that the CLEC is unimpaired without access to unbundled switching. Nevertheless, a rational firm would select the second alternative because it is more profitable.

Q. MR. WOOD CLAIMS THAT ACTUAL DEPLOYMENT (OR LACK THEREOF) SHOULD BE A REALITY CHECK TO A POTENTIAL DEPLOYMENT ANALYSIS BECAUSE CLECS WILL DEPLOY THEIR OWN SWITCHES WHENEVER IT IS FEASIBLE. (WOOD REBUTTAL 10.) PLEASE COMMENT.

A. Mr. Wood's argument is profoundly mistaken. As I discussed, a CLEC rationally will select its entry method based not only on feasibility but also on relative profitability.

Q. DOES THE POTENTIAL DEPLOYMENT ANALYSIS ASK THE COMMISSION TO IDENTIFY AN "AS-YET HIDDEN FORMULA FOR *POTENTIAL* SUCCESS" AS CLAIMED BY MR. WOOD? (WOOD REBUTTAL 18.)

A. No. The purpose of the analysis is to identify situations where it is economic for an efficient CLEC to serve mass-market customers without access to the switching UNE. As I explained, in situations where actual deployment is feasible, CLECs may nevertheless use UNE-P if UNE-P is more profitable. That is why a simple review of actual deployment is insufficient for determining impairment.

Moreover, the existence of UNE-P in markets where there is no genuine impairment can harm switch-based firms, and reduce their survival prospects. One reason (among others) is described in a paper by Hazlett and Havenner, which I described in my direct testimony. UNE-P-based firms that operate in areas where there is no genuine impairment have the incentive to spend inefficiently high amounts of money on customer acquisition. In areas where there is no genuine impairment, UNE-P provides CLECs with the ability to maintain flexibility and lack of commitment to a market because the CLEC need not invest in its own switching. UNE-P-based CLECs have the incentive to dissipate this value by competing against the ILEC and against one another on the only dimension that they fully control, which is marketing and customer acquisition. This inefficiently high spending harms switch-based CLECs that seek to operate in the same market but which do not have the windfall that is available to UNE-P-based CLECs. Accordingly, the market is distorted away from UNE-L-based firms. As a result, the Commission cannot rely on whether switch-based CLECs have exited the market or have become UNE-P firms. It is not a matter of finding any hidden formulas, but rather of accounting for the distortions that exist in markets where UNE-P is offered but where there is no genuine impairment.

Q. DR. BRYANT ARGUES THAT BECAUSE OF UNCERTAINTY REGARDING THE PARAMETER ESTIMATES, THE COMMISSION SHOULD NOT DRAW ANY CONCLUSIONS ABOUT IMPAIRMENT IN

ANY MARKET IN SOUTH CAROLINA ON THE BASIS OF THE POTENTIAL DEPLOYMENT ANALYSIS. (BRYANT REBUTTAL 42.) PLEASE COMMENT.

A. This is another example of an attempt to re-write the TRO. The potential deployment analysis necessarily requires judgment in making the estimates of the parameters required for a business case analysis. However, any experienced observer should recognize that this is no different from many other decisions in the real world, including actual investment decisions, which are always based on projections and estimates of an uncertain future. Investors and businesses routinely must make substantial commitments under uncertainty, given the information available. Dr. Bryant's contention that the Commission should ignore the FCC's rules because the business case approach can produce different results if different inputs and assumptions are used is to presume that the FCC failed to understand that business cases are sensitive to their input assumptions. There is ample evidence in the TRO, however, that the FCC fully recognized this fact (TRO 483-485, fn 1600), but it ordered state commissions to consider such analyses nevertheless.

Q. MR. WOOD ARGUES THAT THE COST OF A SWITCH AND THE NEED TO BACKHAUL TRAFFIC CREATE AN ENTRY BARRIER. (WOOD REBUTTAL 15-16.) PLEASE COMMENT.

A. Mr. Wood improperly presumes the outcome of this case. Moreover, Mr. Wood's argument is actually nothing more than a reprise of the invalid impairment framework sponsored by Mr. Turner, to which I responded in my rebuttal testimony. (Turner Direct 5-7.) Mr. Wood essentially seeks to define an entry barrier as being a cost disadvantage relative to the ILEC. (Wood Rebuttal 15-16.) As I explained in my rebuttal testimony, the FCC examined and rejected this interpretation of impairment. (Aron Rebuttal 32-34, TRO 84 and 112.) The economic rationale for the FCC's rejection of this argument is that, despite any cost disadvantage, an efficient CLEC may nevertheless find entry to be profitable without access to the unbundled element. The FCC correctly recognized that the entire issue of whether CLECs suffer cost disadvantages relative to the ILEC is a sideshow that does not address the central economic issue of impairment.

Q. MR. WOOD ARGUES THAT ANOTHER RISK FACING THE EFFICIENT CLEC IS THAT IT STARTS WITH NO CUSTOMERS AT ALL, WHEREAS THE ILEC ALREADY HAS CUSTOMERS. (WOOD REBUTTAL 15.) PLEASE COMMENT.

A. This is not precisely correct. Out of an abundance of conservatism, we have *elected* to model the competitive entry of a CLEC that starts without any customers. We took this approach to demonstrate that *even if* an efficient CLEC

were to start without customers, it nevertheless could profitably enter particular markets. The obvious reality is that CLECs such as AT&T, MCI, and others already have mass-market customers that they are serving using UNE-P. According to the TRO, one legitimately could have modeled the efficient CLEC as starting with some level of penetration via UNE-P and then migrating those customers while gaining new ones. The Commission should keep this additional source of conservatism in mind as we discuss the other parameter estimates later in my testimony.

Q. IS IT CONSISTENT WITH THE TRO TO DETERMINE IMPAIRMENT ON THE BASIS OF WHETHER "ALL" CUSTOMERS THAT CAN BE SERVED BY UNE-P ALSO CAN BE SERVED BY UNE-L OR SOME OTHER FORM OF COMPETITIVE SUPPLY, AS CLAIMED BY DR. BRYANT? (BRYANT REBUTTAL 17-18.)

A. The CLEC that we model in BACE offers service to *every* customer in each market (and in each wire center in that market) in which it operates. The model takes customers from *every* spend category and from every wire center. In this way, the BACE model would seem to address Mr. Bryant's concern. However, I will add that Mr. Bryant's proposal to investigate whether all of the customers currently served by UNE-P also are (or could be) served by UNE-L is interjecting an additional layer of analysis that is not required by the TRO. The TRO specifically

requires consideration of the *most efficient business model*, and not of a particular model, such as UNE-P. Moreover, the TRO does not suggest that switch-based CLECs must serve precisely the same set of customers as are served under UNE-P. Indeed, this would seem to be an impossible standard to implement because it would require a separate, granular analysis of which customers could be economically served via UNE-P. Such an additional layer of analysis is neither appropriate, nor called for in the TRO, and would further burden an already challenging proceeding.

III. RESPONSES TO ISSUES REGARDING COMPETITION THEORY

Q. MR. WOOD SAYS THAT BELLSOUTH'S ABILITY TO REDUCE PRICES TO WIN BACK CUSTOMERS WOULD DISCOURAGE A PRUDENT CLEC FROM MAKING INVESTMENTS IN THE FIRST PLACE AND WOULD THEREFORE DISCOURAGE ENTRY. (WOOD REBUTTAL 17.) PLEASE RESPOND.

A. While competition may cause some prices to decrease in the market, such price decreases should be applauded by the Commission, and not treated as a reason to discourage competition. I believe it would be perverse public policy indeed if the Commission were to decline to relieve the incumbent of a UNE obligation on the

grounds that doing so might unleash additional price competition. While I understand that Mr. Wood is attempting to paint a scenario in which CLEC entry would not occur despite a lack of impairment, I am aware of no evidence, and Mr. Wood provides none, that this is a realistic concern. Certainly, if the FCC believed this to be a realistic concern it would not have established the impairment rules it did. Under the FCC's rules established in the TRO, the incumbent's ability and desire to win back customers is not identified as a barrier to entry, except perhaps insofar as it is a component of a CLEC's churn. The BACE model reflects reasonable churn assumptions, and therefore accounts for this concern.

Q. WOULD YOU RESPOND IN THE SAME WAY TO MR. KLICK'S CONCERN THAT BELLSOUTH WILL REDUCE ITS PRICES TOWARD SHORT- AND MEDIUM-TERM COST? (KLICK REBUTTAL 34.)

A. Yes. While competition may cause some prices to decrease in the market, such price decreases should be applauded by the Commission. Of course, Mr. Klick limits his observations about the potential for price decreases to the "short" and "medium" term, perhaps realizing that over the longer term, surviving firms in the industry should be expected to earn their risk-adjusted cost of capital.

IV. RESPONSE TO ISSUES REGARDING THE BACE MODEL

Q. PLEASE DESCRIBE THE CONTENTS OF THIS SECTION.

A. In this section, I respond to comments and criticisms regarding the way the BACE model implements the business case analysis that is required under the TRO.

A. RESPONSE TO ISSUES REGARDING THE STRUCTURE OF THE BACE MODEL

Q. MR. KLICK CLAIMS THAT THE SUPPORTING WORKPAPERS UNDERLYING THE PREPROCESSED DATA AND THE DATA ITSELF WERE NOT PROVIDED. (KLICK REBUTTAL 14-15, 30) IS HE CORRECT?

A. Mr. Klick is referring here not to the BACE model itself, but to the separate pre-processing program that uses several million BellSouth customer billing records to determine revenues for *a la carte* service offerings in South Carolina. The supporting workpapers and the programming code itself were provided in response to Sprint's first request for production of documents in Florida. These documents and supporting workpapers were provided in January 2004 along with a memorandum describing the computations performed. The workpapers are applicable to South Carolina. I understand that the parties have agreed that the documents provided in Florida discovery can be utilized in South Carolina. As I

understand it, the millions of proprietary, individual customer billing records from the BellSouth billing systems were not provided to Mr. Klick or any of BellSouth's competitors, but samples of all other input files to the pre-processing program were provided so that CLECs could examine their structure.

Q. DR. BRYANT IMPLIES THAT CLECS ARE NECESSARILY IMPAIRED IN WIRE CENTERS WITH FEWER THAN 5,000 LINES. IS HE CORRECT? (BRYANT REBUTTAL 6-7.)

A. No. Dr. Pleatsikas explains why it is inappropriate to determine impairment on the basis of the NPV of a wire center on a stand-alone basis, and why the appropriate market definition is larger than a single wire center. It is not necessary that, within an economic market, every customer, or every wire center, demonstrate a positive mass market NPV in order for the market as a whole to have a positive mass market NPV, and for CLECs to therefore be unimpaired in that market. Moreover, the particular BellSouth model to which Dr. Bryant refers was presented by BellSouth during the FCC's TRO proceeding. That model was rejected by the FCC because the model was not sufficiently granular. (TRO ¶ 472.) In contrast to that BellSouth model, the BACE model is very granular and can compute the mass market NPV for each BellSouth wire center in South Carolina. Dr. Bryant claims that there are 19 wire centers with fewer than 5,000 lines in the unimpaired markets as defined in the BACE model run in my direct testimony. In fact, there are only

17 wire centers with fewer than 5,000 lines in the unimpaired areas in South Carolina based on the lines input to BACE. Moreover, I find that only 13 of these 17 wire centers have a negative mass market NPV when looked at on a stand-alone basis. Therefore Dr. Bryant's criterion for determining impairment based on the size of a wire center is not correct as a general matter, and fails to meet the granularity required by the TRO. Only a complete analysis of all relevant factors (such as calculated in the BACE model) can be used to determine impairment.

Q. PLEASE COMMENT ON MR. WOOD AND DR. LOUBE'S CLAIM THAT THE MODEL STRUCTURE "LOCKS" THE TIME HORIZON ASSUMPTION AT 10 YEARS. (WOOD REBUTTAL 7, LOUBE REBUTTAL 18.)

A. Such comments on this topic represent a total lack of comprehension of what a business case is and how the BACE model implements the business case. The BACE model is a discounted cash flow model that *explicitly* accounts for a 10-year horizon, but it also accounts for the value of the firm that is generated *beyond* 10 years. It is important to understand that the NPV of a properly constructed business case is completely unaffected by the number of years that are explicitly modeled. That is, the NPV results of a particular business case that uses a 3-year explicit forecast (as Dr. Loube recommends at page 20) and a terminal value (for the years 4, 5, 6, 7, 8, 9, . . .) will be (or should be) identical to the results of a 10-year

explicit forecast and a terminal value (for the years 11, 12, 13, ...). This is because the *terminal value represents the NPV of the remaining (unmodeled) years* out to, potentially, an infinite horizon. This economic relationship for a business case can be summarized as:

NPV = NPV of Explicitly Modeled Years + Terminal Value (NPV of remaining years)

A business case has this structure because the firm's value (i.e., NPV) is (or should be) determined on the basis of economic fundamentals of demand, revenues, and costs over the entire potential horizon of the project, not on the basis of the number of years one explicitly models. In any business case analysis, one cannot appropriately create or destroy value simply by changing the number of years that are explicitly modeled. The number of years that are explicitly displayed should be sufficient to demonstrate that the firm is beyond its start-up phase. To the extent that Dr. Loube and Mr. Wood seek to use a shorter explicit time horizon, they must also make the proper, complementary adjustment to the terminal value. In addition, they must demonstrate that the modeled CLEC has reached a stable phase before moving from an explicit forecast to the terminal value. BACE is designed to incorporate a reasonable and standard business case structure.

Q. DOES THE USE OF A THREE-YEAR MODELING HORIZON PERMIT THE MODELER TO AVOID MAKING FORECASTS BEYOND YEAR THREE, AS SUGGESTED BY DR. LOUBE? (LOUBE REBUTTAL 20.)

A. No, it does not. One would not avoid the hard forecasting issues by adopting a three-year explicit period, one would merely sweep them under the rug where errors might be harder to detect. As I noted, in business case modeling, all of the future value beyond the explicitly modeled period must be accounted for in the terminal value. As a result, Dr. Loube cannot obtain a free lunch in the sense of avoiding difficult forecasting decisions and estimates simply by reducing the explicit forecast period.

As I will discuss later in my testimony (i.e., in Section VI.D, describing price trends), the FCC has provided some guidance to help resolve difficult forecasting issues, and that is in its expectation that states will use existing prices and revenues in their evaluations, rather than engage in forecasts of future price and revenues. We have incorporated the FCC guidance, not only for prices and revenues, but also for costs and the "portfolio" of services that are offered. In other words, one might expect costs to change as a result of productivity, and services to emerge as the result of product innovation. But, given the inherent difficulties in making such projections and forecasts, we comprehensively assume that prices, revenues, the service portfolio and cost inputs remain constant over time. I believe this is a

conservative, coherent way of addressing the forecasting concerns that Dr. Loube identifies.

Good modeling technique requires that one's business case reach a relatively stable relationship between revenues and costs before terminating explicit computations and using a terminal value. Our coherent set of assumptions, including the 10-year explicitly-modeled time horizon, and our approach to price, revenue, services, and costs provides a reasonable way of modeling a firm as it enters a market and moves toward a long-run steady state; at which point, we implement the terminal value assumption. In contrast, Dr. Loube's proposed approach sweeps these difficult forecasting issues under the rug and addresses them implicitly through the terminal value, which he then proceeds to mis-estimate.

Finally, I will note that the FCC's Separations Orders to which Dr. Loube cites address the difficult task of forecasting the growth of new services. These Orders pertained to a rate-of-return regime, under which the FCC sought to ensure that regulated services did not bear the costs and risks associated with non-regulated ventures. (Report and Order, *Separation of Costs of Regulated Telephone Service from Costs of Nonregulated Activities*, FCC CC Docket 86-111, February 6, 1987, ¶ 1.)

It is well-understood that the regulatory regime itself (rate-of-return regulation) affected the incentives of regulated firms in assigning costs. The specific concern of the FCC's was the assignment of shared-equipment-related costs associated with new services, which are services whose growth rates are most uncertain. In the initial Order, carriers were required to forecast relative use allocators (i.e., regulated versus non-regulated usage) at the time of peak non-regulated usage over the life of each shared-use asset. (Order on Reconsideration, *Separation of Costs of Regulated Telephone Service from Costs of Nonregulated Activities*, FCC CC Docket 86-111, October 16, 1987, ¶ 17, 36.) The FCC ultimately reduced the forecast requirement to a three-year forecast, rather than the life of the asset, since this was part of the carrier's typical planning cycle. (Order on Reconsideration, ¶43.)

There are a number of differences between the FCC's decision in that Separations case, and the current requirements under the TRO. The key difference, however, is that in the Separations Order, the FCC was determining a relative use allocator for use in a rate-of-return cost study, not whether entry is economic. A firm will base its entry decision on the full range of net revenues open to it, over all time periods, appropriately discounted, and not simply seek a 3-year payback period because the object of this particular exercise is a business case, not an allocator, we do not have that same luxury—that is, it would be economically improper—to ignore the years beyond year 3.

Q. DR. LOUBE ALSO ARGUES THAT THE TERMINAL VALUE OF THE FIRM SHOULD BE SET AT ONE-HALF OF ITS NET ASSET VALUE. (LOUBE REBUTTAL 40-41.) IS THIS A REASONABLE ASSUMPTION?

A. No, it is not. A terminal value less than net asset value means that the discounted value of the expected future net cash flows is less than the value of the assets used to produce those cash flows. Under Dr. Loube's concept, a CLEC would not enter the market unless it expected to earn sufficient profits during its first three years of existence to counterbalance the expected economic loss that would occur in each year after year 3. This is an unreasonable representation of an efficient CLEC and an unreasonable expectation of a start-up business case. I can think of no legitimate reason why an efficient CLEC necessarily must be assumed to endure economic losses after year 3 (or whatever the explicit forecast period is), as Dr. Loube argues.

As I describe in more detail below, the assumption that I propose, where terminal value equals net asset value, simply means there is an economic breakeven (i.e., the firm earns a return equal to its cost of capital) in the years after the explicit forecast period, with no economic profits or losses. Also, because the BACE model explicitly models 10 years of operations, we are reasonably assured that the CLEC

will reach a relatively steady state where the application of a terminal value is merited.

Q. DO THE WRITE-OFFS INCURRED BY SOME CLECS IN RECENT YEARS PROVIDE EVIDENCE THAT FUTURE PLANT VALUES FOR AN EFFICIENT CLEC LIKEWISE WILL DECREASE? (LOUBE REBUTTAL 40-41.)

A. No. The fact that many CLECs have had to take write-offs is the market's way of withholding or withdrawing capital from firms that are not expected to be successful and that may not be efficient. Many of the write-offs that have been observed are indicative of failed business plans, which is an unreasonable assumption to make of the efficient CLEC. Indeed, the white paper on which Dr. Loube relies for the *amount* of the write-offs also discusses *why* CLECs failed in the first place (and therefore had to take those write-offs). According to that paper, CLECs have experienced substantial inefficiencies, including having unstable business processes, incomplete databases, incomplete inventories of circuits, overly informal business practices, and inadequate accounting systems. (See, Larry F. Darby, Jeffrey A. Eisenach, and Joseph S. Kraemer, "The CLEC Experiment: Anatomy of a Meltdown," Progress on Point (The Progress & Freedom Foundation), Release 9.23 September 2002, pp. 16-17.) These are not the types of inefficiencies that one should assume bedevil the efficient CLEC. In addition,

those bankruptcies occurred during a period of significant decline in the overall economy, a situation we have no reason to incorporate into a forward-looking model. Accordingly, one should not presume that an efficient CLEC with an ongoing business after ten years will find the market value of its assets to be less than the net book value, and it is inappropriate to model the efficient CLEC as having to routinely take write-offs.

Q. MR. KLICK ALSO CLAIMS THAT THE BACE MODEL'S TERMINAL VALUE COMPUTATION IS "CONCEPTUALLY FLAWED." (KLICK REBUTTAL 49.) WOULD YOU PLEASE ADDRESS MR. KLICK'S DISCUSSION?

A. Mr. Klick argues that (1) the BACE model assumes that the CLEC sells its assets at the end of year 10; and that (2) the terminal value assumes that the CLEC remains profitable after year 10. (Klick Rebuttal 49.)

Mr. Klick's first point is not correct; we do not assume anything about the sale of the firm. (Dr. Loube makes this erroneous assertion as well. (Loube Rebuttal 40.)) In any event, whether or not a firm sells its assets at the end of year 10 or at any other time does not affect the NPV of a firm's business case. The NPV of a firm is determined by the discounted net cash flows. Indeed, according to finance theory, the price of an asset sale should bear a relationship to (if not determined by) the

expected future cash flows. As a result, even if the assets are sold, they still have value as a going business concern. Undivided interests in a publicly traded firm's assets (and expected profitability) are sold every day in the stock market. Even when the sales amount to changes in management (as has occurred, for example, when AT&T sold its cable business to Comcast), the assets remain in production and continue to generate income for their owners. In sum, the value of the firm is determined from the cost and revenue fundamentals, not who happens to own the rights to the profits.

Mr. Klick's second point, that we should "test" whether the firm is profitable from year ten on rather than "assuming" it is simple nonsense, (Klick Rebuttal 49) and in suggesting that we need to explicitly model more years is directly contrary to Mr. Wood and Dr. Loube's claim that we model too many years. First, as I noted earlier, I do not assume that the CLEC is profitable after year ten. Rather, I assume only that the value of the ongoing concern is equal to the net book value of its assets. Another way of saying this is that the CLEC earns *zero* economic profits from that point on. Second, Mr. Klick's comment that the TRO does not contemplate the CLEC selling its assets is truly misguided. As I just explained, in markets, the value that assets would command upon sale equals (at least) their discounted present value as an ongoing concern. Assigning them such a value certainly does not require, nor does it imply, that the assets are to be sold.

In fact, there is no reason to model every year into eternity to understand whether a business case has a positive NPV. Standard texts on business case valuation do not call for a business case model into eternity, but instead they note that an estimate of terminal value is *essential* to a business case valuation for a going concern. (See, e.g., Tom Copeland, Tim Koller, Jack Murrin, *Valuation: Measuring and Managing the Value of Companies* (2nd ed.), (1994) (New York: John Wiley & Sons), Chapter 9. Hereafter, *Copeland et al.*)

From an economic standpoint, Mr. Klick's idea of "excluding" the terminal value implies that the firm operates for 10 years and that, at the close of business on December 31 of the 10th year, everyone puts down his or her tools and walks away from the business. If the terminal value were zero, this would imply that the business is abandoned and is neither sold for scrap nor anything else. In other words, under Mr. Klick's notion, all of the accumulated goodwill and all of the tangible assets invested (some of which are invested in year 9, for example) are abandoned and no economic value is derived at all from them. This is an unreasonable method of estimating terminal value. Accordingly, the Commission should reject Mr. Klick's flawed idea.

Q. DOES YOUR TERMINAL VALUE ASSUMPTION MEAN THAT THE CLEC NEVER INVESTS IN ANY MORE EQUIPMENT?

A. No. It simply means that any investment after year 10, of, say $50, will provide (on a discounted basis) exactly $50 in expected return. In this way, expected economic profit after year 10 will be zero (on any incremental investment).

B. RESPONSE TO ISSUES REGARDING MODEL SENSITIVITY

Q. WHAT ARE THE ISSUES REGARDING MODEL SENSITIVITY?

A. Several of the witnesses claim to have re-run the BACE model using their own input assumptions. (Bryant Exhibits MTB-9, and 11; Wood Rebuttal at (e.g.) 31, Klick Rebuttal 6.) Based on the runs that I have made to date, it seems that the differences in the parties' positions are primarily the result of different input assumptions. Dr. Bryant admits that changing the inputs one at a time in a direction more favorable to impairment tends not to cause the NPV to turn negative in the defined geographic markets. (Bryant Rebuttal 29.)

This general robustness of the results to changes in assumptions should provide the Commission with the confidence that the BACE results are not overly sensitive to any particular assumption. Of course, if one were to adopt sufficiently grim assumptions for a sufficient number of inputs, no matter how ill-founded, the modeled CLEC would not be profitable in any of his defined markets in South Carolina. In a well-constructed model such as BACE, there will always be some

set of assumptions under which entry will not be economic in any market. However, I have not seen anything that would change my recommendations on "unimpaired" markets that I described in my direct testimony. It is also important to note that the parties do not dispute the approach of the BACE model (i.e., the use of net present value as a means of determining impairment, under the FCC's rules).

Q. PLEASE DISCUSS THE INCONSISTENCY OF THE VARIOUS WITNESSES' ASSESSMENTS OF THE SENSITIVITY OF THE BACE MODEL RESULTS TO CHANGES IN THE PARAMETER VALUES. (BRYANT REBUTTAL 29-30, WOOD REBUTTAL 20.)

A. Dr. Bryant notes that varying parameter values did "little" to change the NPV. (Bryant Rebuttal 30.) In contrast, Mr. Wood claimed that "even slight changes" to parameter assumptions cause the analysis to indicate that there is impairment. (Wood Rebuttal 20.) These are, of course, mere subjective conclusions. No one has provided a standard or index of the "appropriate" degree of sensitivity. Accordingly, these remarks provide no probative criticism of the model.

V. RESPONSE TO ISSUES REGARDING THE "EFFICIENT CLEC" REQUIREMENT

Q. PLEASE DESCRIBE THE ISSUES THAT YOU ADDRESS IN THIS SECTION.

A. The TRO requires that the potential deployment analysis investigate the business model of an efficient CLEC. (TRO 517, fn. 1579.) "No impairment" is determined on the economic success of the most efficient business model for entry, not on the basis of a particular CLEC or a particular business plan. (TRO 517.) This section addresses issues related to interpreting these directions.

Q. MR. WOOD CLAIMS THAT THE BACE MODEL'S TREATMENT OF CLEC PRODUCT OFFERINGS IS OVERLY BROAD, AND THE RELEVANT ISSUE IS WHETHER A CLEC WILL SELF-PROVISION LOCAL SWITCHING IN ORDER TO PROVIDE LOCAL EXCHANGE AND EXCHANGE ACCESS SERVICE TO MASS-MARKET CUSTOMERS, NOT WHETHER IT WILL PROVIDE NON-SWITCHED SERVICES (SUCH AS DSL). (WOOD REBUTTAL 47-48.) PLEASE COMMENT.

A. Consistent with the FCC's requirements, we did not design the business case analysis to determine whether a particular CLEC or a particular business plan is profitable, as would be the case if we focused only on a CLEC that sought to limit its portfolio of services to switched services. (TRO 517.) Instead, consistent with the TRO, we designed the business case to determine whether the CLEC with an

efficient business model economically could serve mass-market customers in a market without access to the local switching UNE. (TRO 517.) The BACE model assumes that the CLEC will offer a variety of communications services, including vertical features, long distance, voice mail, and broadband internet access, in addition to basic local service (inside wire maintenance is excluded, although an efficient CLEC might offer this as well). Mr. Wood may believe that some CLECs might want to offer a narrower range of services or specialize in some way, but that is irrelevant to the directions provided by the FCC. If such a CLEC can do better by specializing than the BACE CLEC, the model is conservative. If such a CLEC would do worse, it has not adopted the most efficient business model and need not be considered. Moreover, Mr. Wood's assertion is contrary to the FCC's direction to consider *all* revenues reasonably available to an efficient CLEC. (TRO 519.)

Q. DOES THE FACT THAT MANY CLECS HAVE GONE OUT OF BUSINESS MEAN THAT THE REMAINING CLECS ARE EFFICIENT (WOOD REBUTTAL 50) OR, IF ANYTHING, THAT THESE CLECS HAVE REDUCED THEIR COSTS BELOW WHAT MIGHT BE OPTIMAL FROM A LONG-RUN PERSPECTIVE? (BRYANT REBUTTAL 34-35.)

A. Not at all. A CLEC that has wiped debt off its books via the bankruptcy process may indeed have a lower overall cost structure (in the sense of having less fixed financing costs to recover) than a competitor that did not do so. To the extent this

is a countervailing advantage of some existing CLECs, we did not incorporate it into the BACE model. Certainly, having undergone bankruptcy (and its effect on the company's balance sheet) does not imply that the CLEC has emerged with efficient customer acquisition practices, churn rates, overhead costs, or business practices, nor that carriers who have avoided bankruptcy are efficient in any of these respects. Moreover, as I described in my direct testimony, UNE-P-based CLECs that offer service in markets that are not truly impaired have the incentive to inefficiently increase their customer acquisition costs, for the reasons I discussed earlier. This is an incentive for inefficient behavior that applies to all UNE-P-based CLECs that operate in "unimpaired" markets, and it has not been resolved by the spate of bankruptcies of other CLECs.

Q. MR. WOOD CLAIMS THAT DR. BILLINGSLEY'S DISCUSSION ABOUT BANKRUPTCIES CONFLICTS WITH YOUR OWN. (WOOD REBUTTAL 49-50, 54-55.) PLEASE COMMENT.

A. There is no conflict. Mr. Wood points to a quotation in Dr. Billingsley's direct testimony from a study by New Paradigm, a research group. The study contends that many CLECs took on too much debt and invested in too much infrastructure relative to demand, and succumbed to their debt loads when the expected demand did not materialize. Mr. Wood then cites to a passage in my direct testimony that

says that CLECs have gone bankrupt, and my conclusion that, on average, existing CLECs do not have optimally efficient operations.

My comments are in complete concert with the passage from the New Paradigm report cited by Mr. Wood. Overinvestment in anticipation of demand that does not materialize can itself be a form of inefficiency. However, excessive investment is not the only inefficiency exhibited by CLECs. As I noted earlier, other inefficiencies include having unstable business processes, incomplete databases, incomplete inventories of circuits, overly informal business practices, and inadequate accounting systems. (See, Darby, Eisenach, and Kraemer, pp. 16-17.) These are the very reasons that would render it untenable to rely on such CLECs for inputs such as customer acquisition costs or overhead costs as being representative of an efficient CLEC. There also was, of course, substantial fraud by some CLECs that led to bankruptcy. I understand that Dr. Billingsley also responds to Mr. Wood's argument, from the perspective of finance considerations.

Q. MR. WOOD ARGUES THAT "THERE IS NO SUPPORT FOR DR. ARON'S ASSUMPTION THAT CURRENT [ACTUAL] CLEC COSTS NEED TO BE ADJUSTED IN ORDER TO REFLECT EFFICIENT CLEC OPERATION." (WOOD REBUTTAL 50.) PLEASE COMMENT.

A. This is a disingenuous argument. In requests to AT&T, BellSouth sought AT&T's business cases that analyze UNE-P and self-provisioned switching. (BellSouth Florida First Set of Interrogatories No. 15.) AT&T objected to providing that information, arguing that the TRO required an examination of the most efficient business model, and not, specifically, AT&T's business models. Yet, here Mr. Wood essentially claims that actual CLEC costs should be taken as representative of an efficient CLEC. Moreover, in addition to taking an opportunistic position, I am not sure that there is any real meaning to Mr. Wood's claim that I made "adjustments." For example, if I base my estimate on the midpoint of several actual CLEC figures, that is not an "adjustment." My customer acquisition cost estimate of $95 for residential customers is higher than the estimated actual expense for Talk America, and it is substantially higher than the $50 goal that Z-Tel management seeks. This is not an "adjustment" in the sense implied by Mr. Wood—if anything, it would be an *upward* adjustment. I would characterize my estimate as a conservative selection of a point estimate within the range of observed values after reviewing the evidence. Mr. Wood's accusations to the contrary are unsupported.

Q. DR. LOUBE ARGUES THAT A "TYPICAL EFFICIENT CLEC" MAY HAVE CUSTOMER ACQUISITION COSTS AND A LOWER RATE OF MARKET PENETRATION THAN AT&T DUE TO AT&T'S "NATIONAL BRAND RECOGNITION." (LOUBE REBUTTAL 25.) IS THE

"EFFICIENT CLEC" IN THE TRO LESS CAPABLE THAN AT&T, AS DR. LOUBE ARGUES?

A. No, not at all. What Dr. Loube refers to as a "typical efficient CLEC" seems to correspond more to a "typical" CLEC rather than to a genuinely efficient firm. The TRO instructs us to consider the prospects of an efficient CLEC executing the most efficient business model. (TRO ¶ 517.) The TRO also requires that state commissions consider possible countervailing advantages that an efficient CLEC might reasonably have. (TRO ¶ 84.) This would include a known brand name. Being known as a telecommunications company, as are AT&T, Sprint, and MCI, is an advantage that an efficient CLEC might reasonably enjoy. This means that AT&T's successes and prospects provide meaningful evidence of what an efficient CLEC reasonably might accomplish. Because the BACE model does not specifically incorporate the capabilities of a firm with a well-known brand name, the Commission may consider the BACE results to be conservative relative to the capabilities of firms such as AT&T, Sprint, and MCI.

In any event, AT&T's vaunted brand name does not appear to have provided substantial advantages in other endeavors, and it may not provide it with unique advantages in local wireline telecommunications. For example, a recent New York Times article noted that AT&T Wireless's rate of customer additions was below the industry average in the fourth quarter of 2003, (Matt Richtel, "AT&T Wireless

Says it Wants a Suitor," New York Times January 23, 2004, C1+). AT&T's brand name has not provided an obvious advantage in the wireless telephone industry. Indeed, AT&T Wireless's failure to keep up in the wireless industry is resulting in that company's proposed sale to Cingular. AT&T's underperformance and subsequent sale of its wireless assets is not an isolated case, either. In 2002, AT&T sold its interest in cable television service to Comcast, presumably because shareholders believed that Comcast, not AT&T, could create more value. In light of AT&T's struggles in other areas, I think it reasonable to accept that its success in New York, and the company's expected success elsewhere (which I will describe in my discussion of market share) is not attributable uniquely to an all-powerful brand name, and that other carriers with attractive offerings could replicate its success.

VI. RESPONSE TO ALLEGATIONS MADE ABOUT SPECIFIC PARAMETER ESTIMATES

Q. PLEASE DESCRIBE THE CONTENTS OF THIS SECTION.

A. In this section, I respond to various arguments made about the parameter estimates that I supplied to the BACE model.

Q. MR. KLICK CLAIMS THAT YOUR MARKET SHARE, RATE OF PENETRATION, AND RETAIL PRICE ASSUMPTIONS ARE "UNSUPPORTED." (KLICK REBUTTAL 4.) PLEASE COMMENT.

A. I believe that the Commission will find Mr. Klick's assessment, like much of his testimony, to be unreliable, and wildly inaccurate. I will discuss my research methodology, research sources, and results in the separate subsections regarding market share, penetration rate, and prices. However, I will note here that I have provided hundreds, if not thousands, of pages of documents, workpapers, and programs related to these topics in multiple rounds of discovery; and I have been deposed in Florida on the various parameter estimates that I provided to the BACE model (the transcripts of which Mr. Klick would have access to). Mr. Klick's claims are simply not correct.

A. MARKET SHARE (OR MARKET PENETRATION)

Q. DR. BRYANT CLAIMS THAT THE MARKET PENETRATION RATE IS UNSUPPORTED BY THE EVIDENCE. PLEASE DESCRIBE THE EVIDENCE AND PROCESS THAT YOU USED TO DETERMINE THE MARKET PENETRATION RATE. (BRYANT REBUTTAL 35-36, KLICK REBUTTAL 22-27, LOUBE REBUTTAL 23-25.)

A. I investigated evidence on market share and market penetration from the academic literature (that is, literature that is published in peer-reviewed professional journals), a review of customer willingness to switch service providers based on cable telephony, AT&T's successes in other venues, and long-distance successes of Bell Companies after 271 approval, and a consideration of potential future market structure for UNE-L providers.

One of my first steps was to review the academic literature to determine whether there were any relevant general principles that I should account for in an estimate of an efficient CLEC. I concluded that research generally demonstrated that successful firms increased rapidly toward their "maximum" market share in early years, and that growth tapered off as the firm approached its maximum share. I incorporated this general finding into my analysis (as it pertains to the "p-value," which I discuss in the following subsection).

My second step was to review the success that firms have had in the BellSouth region. As I explained in my earlier testimony, I reviewed hundreds of examples of CLEC entry into BellSouth wire centers and determined that it was not unreasonable to use the general "shape" suggested by the academic literature. I also examined the total number of lines (and share of lines) of CLECs in South Carolina and elsewhere in the BellSouth region to determine CLEC successes to date. This analysis provided me with an indication of customer willingness to

change providers, and therefore the "take rates" (i.e., the ability to gain share) of CLECs individually and collectively.

Also, I examined the successes that CLECs have had in other parts of the country, including where competition has been attempted by cable telephony providers. I believe that the experience elsewhere in the country generally is an indicator of customers' willingness to change their service provider. Moreover, such analysis provides an indication of the potential opportunities for an efficient CLEC because it demonstrates what has happened in different market environments, not just what has occurred specifically in South Carolina. It also demonstrates the potential for penetration in light of different competitive responses by other CLECs and ILECs. In other words, examining performances in other parts of the country helps ensure that there is robustness to my own estimate. For example, as I mentioned, cable telephony providers have had success in different areas around the country. This indicates to me that customers generally are willing to change their provider and that this willingness is not unique to any particular market or region. I examined the pricing packages offered on the web sites of some of these firms and confirmed that the telephony services and features were reasonably available to an efficient CLEC.

I also note that at least one investment bank expects AT&T to attain penetration rates of 15 percent local penetration in the states where it offers local service.

(Laura Warner et al., "Reinstating Coverage with Neutral Rating, $31 Target," Credit Suisse – First Boston Equity Research, January 13, 2003, pp. 11-12). The Credit Suisse discussion did not mention any markets in South Carolina, but I believe it is nevertheless indicative of the willingness of customers to change their service provider, in this case, to AT&T.

As I mentioned, the success of the Bell companies' entry into in-region long-distance service also provides a useful point of reference for the ultimate market penetration by an efficient CLEC. Like the efficient CLEC, the Bell companies sell bundles of long-distance and local services. According to analysts at Banc of America, which I referenced in my direct testimony (at p. 28-29, citing to David W. Barden, et al., "AT&T Corporation: A Case for Consumer Services," April 30, 2003, p. 6), these companies have attained market shares on the order of 30 to nearly 40 percent within a two-year period. Not only does this suggest that customers are willing to switch providers (which would apply to local service as well), it also suggests that the "p-value," or rate of success in the marketplace, which I will discuss later, is reasonable.

As illustrated by my examples, I did not limit myself to primary research. Instead, I also consulted secondary research such as investment analyst reports and other analytical and forecasting reports on the industry's prospects. In formulating my proposal, I also consulted with knowledgeable industry and former CLEC experts

on the general factors and issues relevant to CLEC market share, and to the market share proposal itself. I presented my findings and responded to their insights, criticisms, and recommendations.

I believe that my approach produces a reasonable, robust, conservative estimate of market share and the "rate" of market penetration. My approach (conservatively) assumes that the market does not grow. In other words, I presume that any share that the efficient CLEC obtains is a result of success with respect to the ILEC's existing base of customers or from other CLECs, or from acquisitions or mergers with other CLECs, and not from additions to the market size itself. Nor does my market analysis incorporate wireless or other services that may be influencing, or could influence, the landline telephone market. I do not presume that the CLEC wins any converts from, e.g., wireless customers.

My analysis also is conservative in that it does not incorporate any revenue-enhancing effects that could result from changes to product characteristics, or innovations that a switch-based CLEC might implement that would attract subscribers.

My research process was complex, it was time-consuming, and it was intensive. It entailed reviewing a substantial amount of existing research and primary data in the BellSouth region and throughout the country. My approach was designed to

produce a reasonable estimate of an efficient CLEC's market share I believe that the breadth of my research agenda, and its depth, in the sense of including both primary and secondary research, and both qualitative and quantitative research, provides a sound, robust basis for my recommendation.

Q. DR. LOUBE CLAIMS THAT IT IS IMPOSSIBLE TO VERIFY THAT THE RESIDENTIAL MARKET AS A WHOLE HAS A 15 PERCENT MARKET SHARE BECAUSE SOME OF THE RESIDENTIAL "SPEND" QUINTILES HAVE AN ULTIMATE SHARE IN EXCESS OF 15 PERCENT WHILE OTHER SPEND QUINTILES HAVE AN ULTIMATE SHARE LESS THAN 15 PERCENT. (LOUBE REBUTTAL 22-23.) PLEASE COMMENT.

A. Dr. Loube claims that he cannot verify that the market shares of the five "spend" quintiles result in an overall residential market share of 15 percent. He claims that such verification is "locked in a secure database." (Loube Rebuttal 23.) He is incorrect. As Dr. Loube notes, the BACE model wizard displays the ultimate residential market shares by spend category. Alternatively the same information appears in the tblPenCurvesForProducts input table, which I know is available to all intervenors because it has been put in front of me in hearings and in deposition to discuss this very issue. Since there are (by design and definition) the same number of customer locations in each spend quintile, one can take a simple average

of the five shares to determine what the overall share is. For Dr. Loube's convenience, I have made such a computation, which I include as Exhibit DJA-09.

Q. MR. KLICK USES FCC DATA TO COMPUTE A CLEC PENETRATION IN SOUTH CAROLINA. (KLICK REBUTTAL 24-27, BRYANT REBUTTAL 36, LOUBE REBUTTAL 24.) IS MR. KLICK'S ANALYSIS CORRECT?

A. No, it is not. Mr. Klick misuses FCC data and, as a result, he under-estimates CLEC market share in the BellSouth territory in South Carolina. (On page 36 of his testimony, Dr. Bryant makes this same error when he claims that CLECs in aggregate have achieved a market penetration of just under 15 percent. On page 24 of his rebuttal testimony, Dr. Loube makes this same error. Dr. Loube also uses the FCC share data incorrectly in his discussion of the p-value, on page 30-31 of his testimony, as I will explain later in my surrebuttal testimony.) These analyses (such as Tables JCK-3 and JCK-4 in Mr. Klick's testimony) are incorrect because they implicitly and erroneously assume that there is *but a single statewide market* in South Carolina for local exchange service. Instead, there are *multiple* local exchange markets, each of which may have different levels of CLEC penetration due to, e.g., the relative attractiveness of the market and the length of time that CLECs have been competing in the particular market. As Dr. Pleatsikas has noted, from an economic perspective, there is no statewide "market share" for local

exchange service in South Carolina: indeed, the TRO prohibits such a consideration of the market. (51.319(d)(2)(i).) By improperly using a statewide definition, Mr. Klick's aggregate penetration statistics underestimate CLEC successes in the markets where CLECs choose to compete most intensely and have competed for the longest period of time.

An example may clarify how the FCC's CLEC market share data can be subject to the kind of misinterpretation seen in these witnesses's analyses. Suppose there are four markets of equal size and that competitors enter them in succession. In the first year the CLEC obtains 8 percent share in market *A*. In the following year, the CLEC obtains 12 percent in market *A* and 8 percent in market *B*. In the third year, the CLEC obtains 16 percent in market *A*, 12 percent in market *B* and 8 percent in market *C*. Penetration in market *D* remains zero throughout.

Calculating aggregate penetration by treating all four markets as one (analogous to the FCC's methodology in its *Local Competition Reports*) the CLEC's first year share would seem to be 2 percent (8/4), its second year share would seem to be 5 percent ((8+12)/4), and its third year share would seem to be 9 percent ((8+12+16)/4). Thus, these aggregated penetrations do not illuminate what is happening in specific local markets—the high rate of growth of CLEC penetration, and the high level of penetration in certain markets.

Moreover, the FCC's data are statewide and not confined to the ILEC territory within a state (or to specific markets within that territory). Statewide data do not provide any indication of CLEC market share in BellSouth's markets—or, more specifically, an accurate indication of CLEC market share in BellSouth's South Carolina service territories. If, for example, most of the competitive activity in South Carolina occurs within the BellSouth territory in the state, the statewide average market share would be lower than the average within BellSouth's territory in South Carolina. In addition, CLECs with fewer than 10,000 lines in a state are not required to file data with the FCC. The omission of smaller carriers biases the statewide market share estimates low, and could substantially bias the estimates in particular markets.

Hence, the FCC's *Local Competition Report* does not provide an adequate basis for identifying CLECs' market share in BellSouth's territory in South Carolina or in any specific markets within South Carolina, and certainly provides no basis for Mr. Klick's declaration that an ultimate penetration rate for an efficient CLEC is in the range of 4 to 5 percent. Mr. Klick provides no other justification for his conclusion. (Klick Rebuttal 27.) Dr. Loube's conclusions about market share are similarly flawed because they rely on – and misuse – the FCC data for the same reasons I have discussed.

Q. DR. LOUBE NOTES THAT THE MAJORITY OF BELLSOUTH WIRE CENTERS DO NOT HAVE CLEC SHARES IN EXCESS OF 15 PERCENT, AND THAT, AS A RESULT, A 15 PERCENT MARKET SHARE IS TOO HIGH. (LOUBE REBUTTAL 24.) PLEASE COMMENT.

A. The BACE model does not presume that the efficient CLEC will seek to serve all of the markets (or customers) in the BellSouth service territory, or even a majority of them. Indeed, the model indicates that CLECs would be impaired in several markets. Hence, whether CLECs have achieved 15 percent or more in "most" wire centers is irrelevant. In fact, it is likely that CLECs concentrate first on denser or otherwise more lucrative markets before moving to others (if they seek them out at all). For example, CLECs serve 10 percent or more of switched lines in about 25 percent BellSouth's wire centers in South Carolina, and these wire centers contain about 39 percent of all of BellSouth's switched lines in the state.

Moreover, the market share that any individual CLEC has achieved to date in South Carolina is not fully determinative of the market share that an efficient CLEC could attain during the 10-year explicit time horizon of the BACE model. For example, according to an AT&T press release, AT&T only began offering residential local service in South Carolina in January 2004 (See www.att.com/news/item/0,1847,12697,00.html viewed on March 29, 2004). Therefore the FCC data do not reflect AT&T residential market gains at all, and

certainly do not provide any insights into AT&T's potential market gains in the next 10 years.

Q. DR. BRYANT CLAIMS THAT "THE ULTIMATE MARKET SHARE THAT AN INDIVIDUAL CLEC MAY ACHIEVE IS UNKNOWN AND UNKNOWABLE." (BRYANT REBUTTAL 36.) PLEASE COMMENT.

A. I agree that the future is unknowable with certainty. However, I disagree with the inferences that Dr. Bryant draws from this unexceptional fact. As I noted earlier, Dr. Bryant recommends that, due to this uncertainty, the Commission draw no conclusion about impairment from the potential deployment analysis. (Bryant Rebuttal 42.) The FCC directed state commissions to assess potential deployment despite the inherent uncertainty of the future, and I believe it is the Commission's responsibility to do so. Dr. Bryant's advice amounts to an attempt to re-write the rules and it should be ignored.

Dr. Bryant also recommends that because of uncertainty with respect to parameter estimates such as churn, the Commission should perform sensitivities using different parameter values. I have no general objection to the prudent use of sensitivity analyses. However, such an analysis is no substitute for a reasonable initial point estimate. Many of Dr. Bryant's estimates, such as his 5 percent market share estimate, are simply unreasonable for the reasons that I discussed in my

rebuttal testimony. It is pointless to perform a sensitivity analysis on unreasonable point estimates to determine whether there is impairment.

Q. VARIOUS WITNESSES CLAIM THAT AN EXAMINATION OF AGGREGATE CLEC MARKET SHARE IN SOUTH CAROLINA DOES NOT IMPLY THAT EACH CLEC, OR THAT ONE CLEC, COULD ATTAIN THE SAME MARKET PENETRATION. (KLICK REBUTTAL 24-27, BRYANT REBUTTAL 35-36, LOUBE REBUTTAL 24.) PLEASE COMMENT.

A. Mr. Klick (at Table JCK-4), Dr. Bryant, and Dr. Loube are confounding two separate (though related) issues. One issue is the *willingness of customers to leave the ILEC* and obtain telephone service from an alternative provider; and the second is the structure of the market (e.g., the number and relative size of competitors). Both factors contribute to the market share of any particular firm. My analysis of aggregate CLEC successes in South Carolina (and elsewhere in the BellSouth region) provides information regarding the willingness of customers to change their service provider. There is tangible information in cable telephony, long-distance service in the wake of 271 approvals, AT&T's successes in New York, and in a number of wire centers in the BellSouth region about the *willingness of at least 15 percent of customers* to switch to alternative telecommunications service providers and, in the alternative, the degree of customer loyalty to or lock-in to the incumbent

carrier. Whether one, two, or three switch-based CLECs will each obtain 15 percent of the market is the topic of market structure. Indeed, in a valuation model created by investment analysts at Credit Suisse, the analysts expect AT&T alone to gain 15 percent of the residential market, not just in New York, but in all of the states where it is operating. (Laura Warner et al., "Reinstating Coverage with Neutral Rating, $31 Target," Credit Suisse – First Boston Equity Research, January 13, 2003, pp. 11-12.)

Q. DR. ARON, WHAT IS YOUR VIEW OF THE LIKELY MARKET STRUCTURE THAT WOULD PREVAIL IN MARKETS IN WHICH UNBUNDLED LOCAL SWITCHING IS NOT OFFERED AND WHICH YOU HAVE REFLECTED IN YOUR RECOMMENDED MARKET SHARE ASSUMPTIONS?

A. The current market structure, which is highly fragmented with many very small participants, is not likely to prevail in a market with only facilities-based providers. Availability of UNE-P promotes a highly fragmented market, because UNE-P-based carriers need make very little investment in (or commitment to) the market. Because a much greater share of UNE-P CLECs' costs are incremental to the customer, they have much less economies of scale than do facilities-based carriers. While a given local area might support a large number of UNE-P players, I believe a typical urban market would support a much smaller number of UNE-L players.

My framework for viewing market structure implies that the market will undergo significant consolidation in the coming years. I believe that this is inevitable if public policy advances the viability of efficient facilities-based competition. Indeed, we are now seeing consolidation in the wireless industry, also a capital-intensive, facilities-based industry, as AT&T Wireless seeks to sell itself to Cingular. One should not mechanically extrapolate from today's UNE-P market structure to project the market structure – or market shares – that would obtain in a facilities-based market, as Mr. Klick does (in Table JCK-4). Doing so would ignore the fundamental efficiencies in cost structures that drive market structure. Facilities-based firms with significant scale economies would, in equilibrium, have non-trivial market shares. My approach begins with the understanding that I have articulated regarding market structure, and applies to it the evidence we have about consumers' willingness to switch carriers. I do not believe that a market structure with numerous firms, especially firms with small penetration rates, is likely as a long-run equilibrium in light of the scale economy issues I just discussed, nor will many geographic markets support numerous facilities-based CLECs (in addition to the ILEC), as Mr. Klick's Table JCK-4 indicates. I expect market structure to be more consolidated, as is occurring in the wireless industry, and to reflect the scale economies available to CLECs. Hence I believe my penetration estimate is most consistent with a realistic view of ultimate market structure.

Q. PLEASE RESPOND TO THE CLAIM THAT CABLE TELEPHONY IS NOT AN APPROPRIATE INDICATOR OF THE MARKET SHARE THAT CLECS MIGHT ATTAIN. (WOOD REBUTTAL 41-42, LOUBE REBUTTAL 24-25.)

A. Mr. Wood and Dr. Loube argue that information about cable telephony penetration is not representative of the market share a CLEC might reasonably attain because cable providers do not rely on BellSouth's loops. (Wood Rebuttal 42, Loube Rebuttal 24.)

These witnesses err in their conclusions because they confuse supply with demand. In rejecting the use of cable television because cable telephony providers do not routinely use ILEC loops, what Mr. Wood and Dr. Loube are really talking about is the hot cut issue, which is a supply-side concern having nothing to do with an investigation into customers' willingness to change service providers (except through the supply-side issue of customer dissatisfaction with the changeover process).

As putative support to his position, Mr. Wood cites to paragraph 446 of the TRO where the FCC is discussing the fact that cable telephony offers competition from a provider that uses both its own switching and its own loop. Of course, the FCC does not say (and is wise not to say) that cable telephony is an inappropriate

indicator of the *willingness of customers to switch providers*, or that cable telephony is an inappropriate indicator of the market share that a traditional UNE-L-based CLEC might attain in the future.

Dr. Loube makes a somewhat different argument. He argues that because a cable provider does not use the ILEC's loops, the *costs* developed by the BACE model do not reflect the costs incurred by a cable provider. He also argues that the cable provider would have somewhat different revenue opportunities than would a non-cable CLEC. I will expand on this line of reasoning momentarily, though I will note that neither of these arguments bears on the question of whether customers are willing to change service providers when they are offered an attractive service. The cable telephony experience provides tangible evidence that customers are, in fact, willing to change service providers.

Neither Mr. Wood nor Dr. Loube disputes the fact that cable companies have gained substantial numbers of customers and substantial share where they have offered telephone service. Neither Mr. Wood nor Dr. Loube disputes the fact that cable companies such as Cox have gained 20 to over 30 percent share in its more mature markets (See, e.g., Simon Flannery et al. "Trend Tracker: Bottom Line Better, But for How Long?," Morgan Stanley North American Equity Research, May 23, 2003, p. 15), and that Cox itself has gained 19 percent share overall where it offers service and 53 percent of its existing cable TV subscribers. Indeed,

analysts at Deutsche Bank Securities, Inc estimate that "over the longer-term we expect cable to capture around 15% of the US residential market." (Viktor Shvets and Andrew Kieley, "RBOCs: Initiating Coverage '. . . but he's got my switch!'," Deutsche Bank Securities Inc. US Wireline Services, November 22, 2002, p. 129.) These figures indicate that *customers are willing to change their service providers* in large numbers from the ILEC (or other CLECs) to alternative service providers, in this case a cable telephony provider. Such data indicate that it is possible for CLECs to overcome any brand name or other potential goodwill advantage that the ILEC might have and change their providers in substantial numbers. The cable example is especially apt because the traditional structure of cable TV networks is designed to serve homes (rather than large, enterprise businesses) and so cable telephony's successes are good evidence that customers' willingness to change service providers exists in the mass market. These witnesses dispute none of the evidence pertaining to customers' *willingness to change service providers*, which is important evidence in determining a meaningful market share estimate.

Q. IF YOU CONSIDER INFORMATION ABOUT CABLE PROVIDERS FOR YOUR MARKET SHARE ESTIMATE, DOES THIS IMPLY THAT THE BACE MODEL SHOULD HAVE MODELED A CABLE TELEVISION PROVIDER? (LOUBE REBUTTAL 24-25.)

A. No, it does not. The purpose of the BACE model is to investigate whether a particular entry method (e.g., a landline CLEC using its own switching and the ILEC's loops) is economic in a market without access to unbundled local switching. To be conservative, the BACE approach models a CLEC that is entering the market using its own circuit switching and the ILEC's loops. However, this approach does not invalidate using the relevant knowledge that we gain from the cable industry *regarding customers' willingness to switch service providers*. Our approach is a perfectly consistent and reliable way of applying a business case analysis.

Q. DR. LOUBE CLAIMS THAT CABLE PROVIDERS ARE DIFFERENT THAN OTHER CLECS DUE TO "FIRST MOVER ADVANTAGE" AND TO "SCOPE ECONOMIES." (LOUBE REBUTTAL 15-16, 25.) PLEASE COMMENT.

Dr. Loube claims that the TRO recognizes that cable television providers have "first mover advantages" and "scope economies" that allow them to attract customers. (Loube Rebuttal 25.) Dr. Loube refers to paragraph 98 of the TRO. I will note that paragraph 310 (and the associated footnotes) explains in more detail the basis of the FCC's arguments regarding first-mover and scope economies for cable providers. That paragraph says, in part: "[Cable providers have a] unique economic circumstance[] of first-mover advantages and scope economies, [and

therefore] have access to the customer that other competitive carriers lack." By way of explanation, in that same discussion, the FCC notes that this "first-mover" advantage stems from *exclusive franchises and a captive market*. Both exclusive franchise and captive market, however, pertain to cable *television*, not *telephony*. As a result, any first mover advantage that a cable provider happens to enjoy provides the firm with a benefit over its television rivals in the provisioning of television service, not in the provisioning of telephone services.

Similarly, the economies of scope that the FCC suggests would help cable providers "attract customers" do not appear to be unique to cable providers. The cable provider's scope economies are the result of the ongoing relationship with its existing base of television customers that provides the cable company with an opportunity to sell telephone service to this base of television customers (and thereby realize economies of scope in marketing). Of course, such customer relationships are not unique to cable providers. Long-distance service providers such as AT&T, MCI, and Sprint have relationships with their customers as well. Such long-distance carriers may be able to use their existing relationships to sell local voice and data (DSL) services to their customers.

Thus, these advantages either pertain to the cable company's television customers, or they are advantages of the sort that are available to other telecommunications firms. Dr. Loube only argues that these advantages are not available to the "typical

entrant." (Loube Rebuttal 25.) This may or may not be true since the "typical" entrant may indeed be an AT&T, MCI, and/or Sprint, which enjoy, e.g., economies of scope due to ongoing customer relationships. The TRO informs us in any event that the standard for an impairment analysis is not the "typical entrant" (whatever that may be), but, rather, the efficient CLEC executing the most efficient business model. An existing relationship with customers is one such advantage that an efficient CLEC can be expected to enjoy, just as it is enjoyed by real world CLECs, and it should not be ignored in a potential deployment "impairment" analysis. There simply is no evidence that cable providers have some type of advantage in attracting new customers that would not be available to the likes of AT&T or MCI. As I have noted, cable providers have achieved much higher penetration rates than the 15 percent that I am recommending. In some areas, they have already won in excess of 30 percent of the lines that they have targeted. Though I do not believe that these firms have any unique advantages in attracting customers, the fact that I am recommending only 15 percent market share is conservative relative to the successes that some cable companies have enjoyed and should ease any concerns about such advantages.

Q. GIVEN YOUR DISCUSSION OF CABLE TELEPHONY, WOULD YOU ALSO SAY THAT THE SUCCESS OF UNE-P-BASED CLECS IN OBTAINING CUSTOMERS LIKEWISE INDICATES CUSTOMER WILLINGNESS TO SWITCH? (WOOD REBUTTAL 41-42.)

A. Yes. Again, one should not confuse demand fundamentals (which relate to the customers' willingness to switch providers) with supply fundamentals (which, among other things, relate to the hot cut issue and economies of scope), as Mr. Wood does. There is no reason, given the evidence on customer willingness to change providers, that switch-based CLECs would not be able to make the kinds of gains that we have seen in UNE-P. For this reason, the ability of CLECs to attain market share in the BellSouth region and elsewhere is useful information, regardless of the (supply-side) provisioning method used by the CLECs.

Q. MR. WOOD ARGUES THAT CLEC SUCCESSES ACROSS THE BELLSOUTH REGION ARE NOT REPRESENTATIVE OF HOW WELL CLECS MIGHT PERFORM IN SPECIFIC MARKETS AND WITH SPECIFIC PRODUCTS. (WOOD REBUTTAL 41-42.) PLEASE EXPLAIN WHY YOU BELIEVE THE BELLSOUTH REGION-SPECIFIC DATA ARE SUFFICIENTLY GRANULAR TO INDICATE HOW WELL AN EFFICIENT CLEC MIGHT DO WITH RESPECT TO MARKET PENETRATION.

A. It is reasonable to conclude that an efficient CLEC could learn from what is observed in the marketplace, whether that market is in South Carolina or elsewhere in the United States.

With regard to Mr. Wood's "specific products" argument, the range of services that we model in BACE is well representative of the range of services that an efficient CLEC would offer. This might not perfectly match the specific business models of particular CLECs, but doing that would be attempting to model specific CLECs' business plans, contrary to the direction provided by the TRO, as I explained earlier. (TRO 519.)

Q. WHY IS THE ACADEMIC LITERATURE ON MARKET ENTRY RELEVANT TO THE ISSUE OF MARKET PENETRATION, CONTRARY TO THE CLAIMS OF MR. WOOD? (WOOD REBUTTAL 41.)

A. The purpose of scientific research is to identify and test generalized principles (which mean principles that may apply beyond the specific data set investigated). Principles that have withstood empirical challenge can provide guidance to researchers and policy makers. Sometimes, as in this instance, the guidance is of a qualitative nature in that it helps establish a general pattern of competitive entry, as I will discuss.

As I explained in my direct testimony, the academic literature provided me with guidance as to a reasonable "shape" of the market penetration path. For example, one might suppose that a firm gained market share in an "S-shaped" curve. That

certainly was one of the ideas that I considered as I began my research. However, my subsequent research indicated that successful firms tended to grow more quickly upon entry than unsuccessful firms when they are young and small, and that the growth rates of these firms tend to decrease as they become older and larger. The growth of successful firms was more of like the top half of a "C," with fast immediate growth slowing toward an asymptotic level of market share. There is nothing in the telecommunications industry or local exchange industry that suggests to me that an efficient CLEC would not also follow this pattern.

As I noted in my direct testimony (though Mr. Wood failed to note this in his discussion on pages 41 and 42 of his rebuttal testimony), I analyzed data on every wire center in the BellSouth territory and I examined several hundred examples of entry by different CLECs over time. I found that the pattern of entry into wire centers varied, but that generally, entry followed the pattern found by academic researchers in their more formal studies; that is, entry starts with a bang, and then grows at a decreasing rate as the firm matures toward its ultimate market share. This provided me with some assurance that the (qualitative) generalized principle of market entry applied to the local telecommunications industry as well.

I believe that this type of thorough research, which considers the established, researched wisdom of market entry, reviews literally hundreds of pages of actual evidence on this entry in the BellSouth region, considers the implications of entry

by telecommunications services providers that is observed in other parts of the country, and derives a conclusion based on this analysis, illustrates that my proposal is reasoned and reasonable.

Q. WILL BELLSOUTH'S "WINBACK" EFFORTS REDUCE THE ESTIMATE OF THE EFFICIENT CLEC'S ULTIMATE MARKET SHARE? (BRYANT REBUTTAL 36.)

A. No, it will not reduce it from the 15 percent estimate that I recommend, because this is already accounted for in my estimate. My proposal is based on what we can observe in the marketplace today, such as AT&T in New York and cable television companies where they choose to offer telephone service. It is rational for the ILEC in those areas to offer winback programs and these CLECs still have been successful in gaining substantial share. In other words, absent ILEC winback programs in these areas, I would expect these CLECs would have higher market penetration rates than they already do. Thus, making a downward adjustment to my proposed market share because BellSouth offers winback programs would effectively twice-consider the effect of these programs.

Q. DR. ARON, IS YOUR 15 PERCENT MARKET SHARE RECOMMENDATION CONSERVATIVE IN ANY OTHER WAY? (WOOD REBUTTAL 41.)

A. Yes, it is. I assume that the overall market for the services offered by the CLEC does not grow (or shrink) over time. This has an important implication for my 15 percent market share recommendation. A market share of 15 percent 10-years out in a market that does not grow represents approximately the same level of demand (all else the same) as a 12 percent share in a market that grows by just 2 percent per year. (Indeed, a market that grows at 4 percent per year would produce approximately the same level of CLEC-served demand at a 10 percent share as does the 15 percent share with no overall market growth.)

It is reasonable to believe that the overall demand for voice telecommunications services will increase in the future (Viktor Shvets, RBOCs: Initiating Coverage, Deutsche Bank Securities Equity Research, November 22, 2002.) Moreover, the market size assumption is important in how it translates into revenue and costs in the NPV model. Accordingly, my assumption of zero overall market growth is conservative.

In sum, to be conservative, I have presented a consistent set of assumptions based on a conservative product definition (e.g., I exclude wireless services, and consider only ILEC and CLEC lines and revenues), prices, and penetration rates that assume no growth in the either the number of total customer locations, or in the definition of the market (as CLEC + ILEC lines).

Q. WHAT EVIDENCE DOES DR. LOUBE PRESENT FOR HIS RESIDENTIAL MARKET SHARE RECOMMENDATION OF 8 PERCENT? (LOUBE REBUTTAL 26.)

A. Dr. Loube argues that (1) this market share equals the current aggregate market share of South Carolina CLECs; (2) in an *ex parte* presentation to the FCC during the Triennial Review proceeding, BellSouth used a five percent share to examine CLEC entry; (3) other parties used shares of 7 to 10 percent in their *ex parte* presentations during Triennial Review proceeding. (Loube Rebuttal 26.) I have already explained that the current aggregate market share in South Carolina reported by the FCC almost certainly understates the CLEC market share to BellSouth's territory in South Carolina, and that, at best, it provides a lower bound to activity in the BellSouth region in the state.

As for the other claims made by various parties during the Triennial Review proceeding, Dr. Loube fails to identify any of the presentations other than BellSouth's. For example, MCI presented a model that offered immediate penetration rates as high as 15 percent. (See, "The Cost of Serving Residential Customers Using UNE Loops," MiCRA, January 8, 2003, p. 7. as attached to the *Written Ex Parte*, UNE Triennial Review etc., CC Dockets No. 01-338, 96-98, and 98-147, Donna Sorgi on behalf of Worldcom (a/k/a MCI), January 8, 2003.) In any

event, the FCC rejected all these models for a variety of reasons including the fact that the assumptions were not well supported, and the FCC certainly never concluded that market shares as low as 5 percent had been justified in any way or even were remotely reasonable.

Q. DR. LOUBE CLAIMS TO RECOMMEND AN 8 PERCENT MARKET SHARE FOR RESIDENTIAL CUSTOMERS. DOES HE, IN FACT, USE 8 PERCENT IN HIS ANALYSIS? (LOUBE REBUTTAL 26-27.)

A. No, he does not. Dr. Loube acknowledges that the efficient CLEC will have the incentive to target higher-spending residential customers. Accordingly, he assumes that the CLEC will attain an 8 percent share in the top 4 residential spending quintiles, and a zero percent share in the bottom quintile. This produces an overall market share of 6.4 percent (i.e., 6.4=(8+8+8+8+0)/5).

Q. MR. WOOD CLAIMS THAT THE BACE MODEL ASSUMES THAT THE TOTAL MARKET FOR WIRELINE TELECOMMUNICATIONS SERVICES WILL GROW OVER THE TIME HORIZON OF ITS ANALYSIS. (WOOD REBUTTAL 40.) IS THIS TRUE?

A. No, as I just described. This can be verified by consulting the tblMarketGrowth table, which shows overall market growth to be zero.

B. P-VALUE

Q. DR. ARON, WOULD YOU PLEASE SUMMARIZE THE ISSUE WITH RESPECT TO THE "P-VALUE"?

A. Yes. One of the inputs in the BACE model is the trajectory that is assumed for the CLEC's market share. We assume that the CLEC begins with no customers, and adds them over time and ultimately approaches a "maximum" market share. The "p-value" relates to the speed with which the efficient CLEC is able to gain market share and move toward its "maximum." For residential customers, I recommend a p-value of 0.50, which means that the CLEC gains half of its ultimate share (or 7.5 percent, because we assume a maximum share of 15 percent) by the end of the first year, three-quarters by the end of the second year, and so on. Various parties submit that the p-value of 0.50 for residential customers is overly aggressive. I believe that it is conservative, as it is used in the BACE model.

Q. WHY IS A P-VALUE OF 0.50 FOR RESIDENTIAL CUSTOMERS CONSERVATIVE? (WOOD REBUTTAL 43, KLICK REBUTTAL 23-24.)

A. First, the BACE approach models a *de novo* CLEC—that is, a CLEC that enters the market without any customers. However, the FCC's requirement that the

Commission consider all the CLECs' various advantages would permit us to model a CLEC (such as AT&T or MCI) that already has a substantial number of revenue-generating UNE-P lines, which, over time, will be migrated to UNE-L lines in those areas where an efficient CLEC is not impaired without access to the local switching UNE. Indeed, Mr. Klick admits that CLECs already serve at least 8 percent of switched access lines in South Carolina, and, as I indicated, this is biased low as an indicator of market penetration in particular markets. We opted not to model an efficient CLEC with a base of existing customers, but certainly this illustrates the conservatism of the p-value assumption.

Second, as implemented in BACE, a p-value of 0.50 means that the CLEC obtains half of its ultimate market share at the *end* of the first year. The *average* penetration during the year is 3.75 percent. (Mr. Wood and Mr. Klick completely misunderstand how the BACE model uses the p-value, and as a result, their arguments are wrong.) The revenue assumption for the first year reflects a 3.75 percent penetration rate, not 7.5 percent. We provided a description of the method and data that we used to develop the market entry curves, and other information, to AT&T and Sprint in response to discovery. (AT&T's (Georgia) 2nd Set of Requests for Production of Documents No. 44, Florida Sprint's 1st Request for Production of Documents No. 2.)

Third, as I noted earlier, analysts at Banc of America estimate that the Bell companies have attained market shares on the order of 30 to nearly 40 percent within two years of offering in-region long distance service. Moreover, they have attained approximately 25 percent in the first year, which means that the p-value is on the order of 0.625 (i.e., 25 percent / 40 percent) to 0.833 (i.e. 25 percent / 30 percent). I believe that this is relevant information because firms such as AT&T and MCI are large national long-distance providers that can provide local service and local/long-distance bundles, which provides them with the same products that the Bell companies are selling (local and long distance or local/long-distance bundles). The Bell long-distance data therefore are relevant indicators of customer willingness to change service providers.

Finally, it is worth noting that Dr. Bryant's approach uses a p-value of 1.00. In other words, he models a CLEC that obtains its full measure of market share (five percent, in Dr. Bryant's case) on the first day of operations. His average penetration for the first year is 5 percent, which exceeds our assumed average penetration of 3.75 percent.

Q. DR. LOUBE ARGUES THAT THE FCC'S DATA REGARDING CLEC-SERVED MASS MARKET LINES INDICATES A P-VALUE LESS THAN 0.50. (LOUBE REBUTTAL 30-31.) PLEASE COMMENT.

A. As I noted in my discussion of market share, the FCC's aggregate statistics understate the CLEC activity that is occurring in particular markets for several reasons. The aggregate statistics (1) do not include CLECs with fewer than 10,000 lines that have chosen not to file such statistics; (2) combine and confound areas with no competitive activity (or whose competitive activity is in a very youthful stage) with the competitive activity in more mature markets. As a result, the p-value computed from the FCC's statistics provide only an indication of a lower bound, not of a reasonable estimate that should be used in an impairment model for an efficient CLEC that selects precisely the markets that it chooses to enter. Earlier in my surrebuttal testimony, I provided examples that demonstrate the fallacy of using statewide averages as an indicator of market-specific share. The same examples illustrates vividly why a time-series of statewide average shares cannot be used as a basis for rejecting the p-value I recommend.

Q. MR. KLICK CLAIMS "RAPID GAINS" BY CLECS ARE LARGELY ATTRIBUTABLE TO THE EXISTENCE OF UNE-P, AND THAT CLECS MAY NOT ACQUIRE MARKET SHARE AS RAPIDLY USING UNE-L. (KLICK REBUTTAL 28-29.) PLEASE RESPOND.

A. Certainly the first response is that CLECs in South Carolina already have acquired customers, and that, as a result, they will not have to "reacquire" these same customers as they shift the provisioning method from UNE-P to UNE-L. As a

result, Mr. Klick's concerns about the rate of additions under UNE-L are overblown for that reason alone.

Moreover, Mr. Klick's argument has nothing to do with whether a customer is willing to change service providers, which is the subject of my testimony. Rather, his argument has to do with whether an efficient CLEC can manage its network processes (e.g., establish collocation where necessary, arranging for transport, and hot-cutting customers) to produce the same number of additions (or more) as has occurred under UNE-P. The BACE model accounts for the establishment of collocation and backhaul, and hot cuts. Other BellSouth witnesses describe the ability of an efficient CLEC to establish their network requirements so as to permit the CLEC to add customers as they win them in the marketplace.

Q. MR. KLICK CLAIMS THAT YOUR APPROACH TO MARKET PENETRATION "FRONT-LOAD[S]" THE PENETRATION RATES AND THEREBY OVERSTATES THE PRESENT VALUE OF THE REVENUES THAT A CLEC CAN EXPECT TO RECEIVE OVER THE 10-YEAR STUDY PERIOD. (KLICK REBUTTTAL 29-30.) PLEASE COMMENT.

A. My recommended penetration curve shape is derived from my research of the academic literature and the generalized findings of researchers who have investigated the market entry paths of successful firms. Mr. Klick does not dispute

the findings that I described from my review of the academic literature: indeed, he does not even acknowledge them. Rather, Mr. Klick's complaint seems to be that such a pattern contributes to the chances of success for the efficient CLEC that is modeled in the BACE model. This may be so, but simply because the peer-reviewed academic research is instructive or beneficial to the impairment business case does not mean that we should ignore it. The FCC instructed us to consider an efficient firm. I take that to mean that we should model the penetration patterns of successful, rather than unsuccessful firms. It would be foolish to use an entry pattern of *unsuccessful* firms to model the entry patterns of an *efficient* CLEC.

Q. IN HIS REBUTTAL TESTIMONY, MR. KLICK USES A STRAIGHT LINE TO RAMP UP THE MARKET PENETRATION. (KLICK REBUTTAL 29.) IS THIS PARTICULAR PATTERN OF GROWTH SUPPORTED BY THE RESEARCH?

A. No, it is not. As I discuss in this section of my testimony, the peer-reviewed academic literature does not support a straight-line penetration path and Mr. Klick provides no reasoned analysis for this particular "sensitivity" analysis. On this point, Mr. Klick clearly is engaging in mere speculation, without legitimate support. In contrast, I provided substantial background support for the path that I recommend for use in the BACE model. All of these papers were made available

to Mr. Klick, but Mr. Klick said not a word about any of the academic literature that contradicts his recommendation.

Moreover, it is clear that Mr. Klick does not understand the relationship between CLEC *gross* customer additions, *net* additions, churn, and the penetration rate. Mathematically, Mr. Klick's linear penetration rate (i.e., a penetration rate that increases linearly until reaching the maximum penetration, and then abruptly flattens out) requires *either* a churn rate of zero (in which case gross adds translates into penetration), or, if churn is positive, it requires exponential growth in the number of monthly gross adds (to offset the monthly churn losses). Neither of these assumptions is realistic, in my view. In contrast, the "concave" penetration curve, such as the one I recommend, is the result of the interplay between churn and gross additions. The concave penetration curve is consistent with a positive, non-zero churn rate and a constant (linear), number of *gross* additions each month.

C. PRICE LEVELS

Q. DR. ARON, PLEASE SUMMARIZE THE ISSUES THAT YOU ADDRESS IN THIS SECTION.

A. In this and the following section, I address criticisms leveled by various CLEC witnesses regarding the prices that I recommended for use in the BACE model.

This section discusses criticisms of the prices themselves. The following section discuses issues related to trends in the prices over time. (Consistent with the TRO, my estimates for prices, and costs, are not trended.) The BACE model incorporates prices for service bundles (e.g., aggregations of services consisting of local voice service, vertical features, and long-distance and/or DSL services) and for what I call "*a la carte*" services.

In both cases, the main complaint seems to be that I relied on the use of existing CLEC service prices for bundles and on actual BellSouth billing data for the *a la carte* services. Various theories are advanced for the use of other data and for adjusting these data over time. My main response is that the FCC clearly foresaw that prices would be a contentious issue. It reasonably determined that rather than bogging down the impairment analysis process in controversy, it would require that the potential deployment analysis use existing prices. Many of these criticisms simply seek to rewrite or ignore the TRO's direction and use prices that are not reflective of prices that are effective in the market today.

Q. MR. WOOD CLAIMS THAT YOU DID NOT SUFFICIENTLY DISAGGREGATE BELLSOUTH'S CURRENT *A LA CARTE* PRICES AND, AS A RESULT, CLEC REVENUES CANNOT BE ESTIMATED WITH ANY DEGREE OF ACCURACY. (WOOD REBUTTAL 27.) PLEASE COMMENT.

A. By any objective standard, the BACE model is a highly granular model. It is, in fact, the most granular business case analysis I have ever seen. I believe that Mr. Wood resorts to the (unfounded) criticism that the BACE data lack granularity whenever his imagination flags. In any event, Mr. Wood has absolutely no basis for this claim. In determining the revenues reasonably available to the CLEC for its *a la carte* services sold to mass-market customers, we processed millions of individual BellSouth customer billing records. For residential customers, we consolidated those billing records into five "spend" groups at the wire center level (for businesses, we grouped the records into four business segments that varied by the number of lines served and three spending groups for each business segment). In so doing, we provided abundant granularity on the numbers of lines, the services, and the spending levels that reasonably would be available to an efficient CLEC. Our methodology produces different, granular average revenue estimates for each product, customer segment, and spend group by state. These estimates are based on the specific mix of customers in each wire center. Each wire center has a different profile of customers delineated by spend categories. Therefore each wire center has a different effective average revenue per residence and each of the four business customers segments. This process addresses the point that Mr. Wood makes without the additional (and pointless) complexity that Mr. Wood seeks.

Q. MR. WOOD CLAIMS THAT YOUR PROCESS OF AGGREGATING CUSTOMERS FAILS TO SEPARATE HIGHER SPENDING THAT RESULTS FROM BEING IN A HIGHER-PRICED RATE GROUP FROM HIGHER SPENDING THAT RESULTS FROM BUYING MORE SERVICES. (WOOD REBUTTAL 32-34.) PLEASE COMMENT.

A. Mr. Wood expresses a concern that because South Carolina has several retail price groups, the BACE model's treatment of customer segmentation is "incorrect" and "biased" the results toward a showing on no impairment. (Wood Rebuttal 33.) Mr. Wood's testimony is unclear and somewhat confused on this point, but his conclusion appears to be without merit.

Mr. Wood's concern seems to pertain to his observation that some customers spend a lot on telecommunications because they buy a lot of services at relatively low prices, while others spend a lot despite buying fewer services because they pay higher prices. While in principle this is a true statement, it does not lead to any realistic concern with the results of the BACE model. First, as a practical matter, regardless of whether there were any merit to his concern in theory, the fact is that the only BellSouth prices that vary by rate group in South Carolina are the basic local access line rates. Based on the design of the rate groups, only a relatively few residential customers will pay prices that differ significantly from the highest to the lowest rate group. Instead, over 70 percent of BellSouth's residential customers

will pay local access line rates that are within $0.45 of one another, and over half will have the same local access line rates. In the context of total spend levels, this difference would have minimal effect on the model and so Mr. Wood's convoluted discussion is actually much ado about nothing.

In fact, there are many reasons that customers vary in their spend levels. One customer might spend more than another because she is in a higher rate group for the local access line; or it might be that she is in the same or lower rate group, but purchases more vertical features, purchases DSL, purchases voice mail, has more long distance usage, or spends more on other services. A customer's spend level reflects all of these factors. The BACE model captures all of these factors because customers who, for whichever set of reasons, spend more, are placed in a higher quintile to reflect that spend level. All else equal, wire centers in higher rate groups will have larger numbers of customers in high spend quintiles. This is not a bias in the model but rather is a strength of the model because it enables the modeled CLEC to target geographic markets with high-spend customers. To the extent that costs differ from wire center to wire center, this is also captured in the cost architecture of the model. Hence, there is no bias.

While Mr. Wood asserts that his observation about the different reasons that customers might be in a high spend category would lead to some bias or systematic inaccuracy in the model, he does not explain what the mechanism leading to such

inaccuracy would be, and he certainly does not demonstrate any bias. *Any* model will aggregate and summarize different individual observations into averages or groups in some way, and this will always obscure some individual differences and characteristics. Short of modeling competition for each individual customer (which is an unreasonable and unrealistic standard), some individual-specific factors will not be accounted for. This in no way creates a bias or constitutes a weakness.

The fact is that in the BACE model, the costs of serving a given customer profile in a wire center are specific to the characteristics of that wire center, and the numbers of customers in each spend quintile are specific to each wire center. I believe that the level of granularity of the model is extremely high, and any attempt to discredit it or level unsupported claims of purported bias for failure to model still greater granularity should be rejected.

Q. MR. WOOD CLAIMS THAT THE PRICES FOR SERVICE BUNDLES WERE NOT DESCRIBED IN YOUR TESTIMONY. (WOOD REBUTTAL 28.) PLEASE COMMENT.

A. These prices were provided in response to Sprint's First Request for Production of Documents No. 1 in Florida, and the Florida Staff's 5th Request for Production of documents No. 31 and Interrogatory 82. I understand that all of these responses have been made available to all parties in each of the BellSouth states.

Q. DR. LOUBE CLAIMS THAT HE IS UNABLE TO VERIFY THAT THE $106 BUNDLE (I.E., "RESIDENTIAL BUNDLE C") THAT IS ONE OF THE BUNDLED OFFERINGS IN BACE IS A REASONABLE PRICE. HE FURTHER CLAIMS THAT AN MCI BUNDLED RATE FOR COMPARABLE SERVICES IS $86.48. (LOUBE REBUTTAL 37.) PLEASE RESPOND.

A. I am surprised that Dr. Loube does not know how this price was developed, since we provided the documentation that describes in detail how we arrived at the price of $106 in response to Sprint's First Request for the Production of Documents in Florida No. 1, and these documents have been available to Dr. Loube since January 2004. The documents demonstrate that the $106 service bundle for Zones 1 and 2 was derived first by surveying the bundled services offered by the various service providers, and then adding to them the EUCL charge and voicemail fee. These figures were averaged and then a small amount (under $2.00) associated with Operator Services / Directory Assistance revenues reasonably obtainable from each customer was added to the total. Our information used to develop the prices in South Carolina was state-specific, but our survey methodology was consistently applied across all nine BellSouth states.

Rather than review all available bundles of comparable products in the market today, Dr. Loube has identified one MCI bundle, which he says is not priced at $106. While the DSL portion of that MCI bundle price has apparently fallen since the time of my analysis in November 2003, this fact in no way impugns the reasonableness of my analysis. While one part of one bundle may have fallen in price, others may have risen or changed as well. It is not possible for me to continually update my extensive price analysis, but if Dr. Loube wishes to do so, the only unbiased approach would be to re-survey all the relevant prices that went into my analysis. Dr. Loube's selective approach invites bias in the analysis.

Q. DOES DR. BRYANT CRITICIZE YOUR REVENUE ESTIMATE FOR RESIDENTIAL CUSTOMERS? (BRYANT REBUTTAL 40.)

A. No, not directly. Instead he runs his own sensitivity using a monthly revenue estimate of $50.94. He does not comment directly on my revenue estimates.

Q. PLEASE COMMENT ON DR. BRYANT'S USE OF THE $50.94 IN HIS SENSITIVITY ANALYSIS.

A. In my rebuttal testimony, I have already addressed Dr. Bryant's use of TNS telecom data for developing a revenue estimate. As Dr. Bryant has failed to

address any of my criticisms, I stand on my previous testimony that the use of this figure is inappropriate.

Q. MR. KLICK CLAIMS THAT THE PRICE DATA USED IN THE PRE-PROCESSING PROGRAMS IS SOMEWHAT DATED AND THAT PRICES HAVE DECLINED SINCE THE DATA WERE EXTRACTED FROM THE BELLSOUTH BILLING SYSTEMS. (KLICK REBUTTAL 14-15, 30.) PLEASE COMMENT.

A. Mr. Klick is incorrect. I understand from BellSouth witness Kathy Blake that BellSouth did not reduce its local service prices in South Carolina during 2003. Accordingly, the data are reasonable to use.

Moreover, it is not true that the use of April 2003 prices for *a la carte* services overstates profitability, as Mr. Klick argues. (Klick Rebuttal 30.) Aside from the fact that the prices have not changed, it may be the case that more customers are using more services (e.g., vertical features are penetrating more deeply), and that, as a result, total spending per customer may have increased. Mr. Klick does not take this into account, and there is no basis for his sweeping statement that profitability will be "overstated."

Q. MR. KLICK CLAIMS THAT THE BACE MODEL ASSUMES THAT RESIDENTIAL CUSTOMERS WILL SPEND ABOUT $37 PER MONTH PER LINE FOR LOCAL SERVICE (EXCLUDING LONG DISTANCE AND VOICE MAIL), WHICH IS CONSIDERABLY HIGHER THAN THE PRICES THAT HE CLAIMS ARE IN AN NRRI REPORT. (KLICK REBUTTAL 31.) PLEASE COMMENT.

A. Mr. Klick's comparison between the estimates made by the National Regulatory Research Institute ("NRRI") and the BACE figure is not valid. The NRRI estimates of $20.25 to $22.50 that Mr. Klick cites represent average residential customer spending on basic local services. The figures include the residential flat rate price, the EUCL, and contributions made to the universal service fund ("USF"). This represents about the least amount that a residential customer can spend for wireline local service in the sense that the figure excludes any spending for vertical features such as call waiting, caller ID, three-way calling, and so forth.

The NRRI estimate thus understates the revenues that are reasonably available to the efficient CLEC because it excludes features and access. This is an especially important shortcoming because the efficient CLEC can tailor its offerings to appeal to those customers who tend to use more features and make a greater number of long-distance calls (thereby generating access charges for the CLEC).

The BACE model revenues are based on existing BellSouth local exchange rates (discounted by 10 percent for *a la carte* local services) and the market prices for actual service bundles offered by CLECs in South Carolina. The main difference between the NRRI and BellSouth figures is simply attributable to the fact that few of the efficient CLEC's customers will subscribe only to a local exchange service, without any features, and without generating any access minutes. Indeed, these are the very types of customers that the efficient CLEC would seek to avoid. The NRRI data therefore do not provide a relevant benchmark for the efficient CLEC's per-customer revenues.

Q. MR. KLICK ALSO CLAIMS THAT THE BACE MODEL'S ASSUMPTION OF $37 IN REVENUE PER MONTH PER LINE FOR LOCAL SERVICE (EXCLUDING LONG DISTANCE AND VOICE MAIL) IS CONSIDERABLY HIGHER THAN THE PRICES THAT HE CLAIMS AT&T OFFERS FOR LOCAL SERVICE. (KLICK REBUTTAL 31-32.) PLEASE COMMENT.

A. The BACE figures are in line with the AT&T prices that Mr. Klick cites to on page 31 of his rebuttal testimony, once the AT&T prices are placed on a comparable basis to the BACE figures.

For example, the AT&T local service package prices (i.e., no long distance service) of $25.95 and $29.95 cited by Mr. Klick (Klick Rebuttal 32) do not include USF support or access charges (although, as I noted, these are included in the BACE figures). Removing these two charges reduces the BACE average monthly revenue from $37 to $32.23. In addition, the $25.95 (and $29.95) AT&T price excludes the EUCL (of $6.50) that AT&T charges its customers. Removing the $6.50 EUCL from the BACE revenue further reduces the revenue to $25.73. The AT&T price also does not account for all possible revenues from vertical features because while the price includes some features, others can be purchased for an additional charge. Hence, the BACE price is actually lower than the AT&T price cited by Mr. Klick when put on a comparable basis, and that is *before* accounting for any additional vertical features revenues, which may be purchased for additional charges.

Q. IS MR. KLICK SIMILARLY WRONG WITH REGARD TO THE IMPLICATIONS OF HIS ANALYSIS OF SOHO SPENDING? (KLICK REBUTTAL 31.)

A. Yes, he is. Mr. Klick cites once again to the NRRI report which, as I stated, includes only the flat rate, EUCL and USF charges. In contrast, the BACE average revenue figure includes revenues from vertical features, based on actual customer purchases, and it also includes access charges and USF support.

Finally, I would emphasize that my prices and revenue estimates are based on actual South Carolina billing data, and actual CLEC bundled offer prices in South Carolina, and these prices are taken from all South Carolina customers. Therefore, the revenue reported in BACE is much more appropriate, reflects prevailing prices, and is representative of the revenue available to an efficient CLEC than are partial revenue estimates provided by the FCC or NRRI.

Q. MR. KLICK CITES TO A JP MORGAN REPORT ("ART OF WAR") AND CONCLUDES THAT YOUR LONG-DISTANCE REVENUE ESTIMATE IS OVERSTATED. (KLICK REBUTTAL 32.) PLEASE RESPOND.

A. First, Mr. Klick has miscalculated the average long-distance revenues that the BACE model uses to derive NPV. He states that the residential average long-distance revenue in the first year is $21.13. (Klick Rebuttal 32.) This is incorrect. The BACE model assumes that long-distance residential revenue per line in the first year is $19.01, and that long-distance revenue per line, averaged across the entire 10-year explicit forecast period, is $18.36.

In addition, I do not believe that data derived from the particular JP Morgan report cited by Mr. Klick is reliable. I analyzed this report as I was researching and preparing my recommendations, and I concluded that it is inconsistent with FCC published reports. For example, JP Morgan estimates that the voice long distance

market was $89.5 billion in 2000. However, the FCC's *Trends* report estimates that total industry toll revenues were $109.6 billion in 2000. (*Trends in Telephone Service*, FCC Industry Analysis and Technology Division-Wireline Competition Bureau, May 2002.) Thus, the FCC's estimate is some 22 percent higher than JP Morgan's.

I also find that the year 2000 data presented in that JP Morgan report produces an AT&T consumer market share of about 69 percent, whereas the FCC estimates AT&T's consumer market share at about 48 percent. These figures can be reconciled by recognizing that JP Morgan's estimate of the overall voice long distance market is too low. As a consequence of these anomalies, I do not think that that particular JP Morgan report is a reliable way of estimating voice long-distance revenues in South Carolina.

Q. DR. ARON, MR. KLICK ALSO RELIES ON THE JP MORGAN REPORT AND ARGUES THAT THE SOHO LONG-DISTANCE REVENUE THAT YOU RECOMMEND IS TOO HIGH. (KLICK REBUTTAL 32.) PLEASE COMMENT.

A. I do not understand why Mr. Klick points to the JP Morgan report, since this report focuses its analysis on the *residential* customer rather than the *SOHO* customer. Indeed, Mr. Klick does not provide any evidence on *SOHO* customers from that JP

Morgan report to substantiate his claim that my estimate is unreasonable. Moreover, Mr. Klick is representing the nation's largest long-distance carrier, AT&T. It would seem that Mr. Klick could have asked AT&T to produce its SOHO revenues for his own and the Commission's review, rather than rely on an investment report that, as I noted, is unreliable and inconsistent.

Q. HOW WERE THE LONG-DISTANCE REVENUES FOR THE BACE MODEL DEVELOPED?

A. The long-distance revenues in the BACE model were developed from industry revenue estimates developed by independent telecommunications analysts and applied to the various customer segments. The national market size (measured by revenue) was determined from IDC and Yankee Group reports. The 2003 market size from these reports was averaged separately for business and residential customers. The share attributable to the BellSouth footprint was computed on the basis of access minutes. The residential long-distance revenues were allocated to individual customers based on a BellSouth estimate of the long-distance revenue from each customer and adjusting for the CLEC customers within the BellSouth footprint. The business long-distance revenue was reduced to reflect the HiCap customers excluded from BACE. This reduced revenue was allocated to the BellSouth states on the basis of access minutes. Finally, the business long-distance revenue per line was computed by dividing the business long-distance revenue by

the number of BellSouth and CLEC business lines within the BellSouth footprint within that state. This structured approach, which was supported in detail in response to Sprint's first production of documents in Florida, assures that the long-distance revenue estimates are reasonable.

D. PRICE TRENDS

Q. DO YOU HAVE ANY GENERAL COMMENTS ABOUT THE WITNESSES' ARGUMENTS REGARDING PRICE TRENDS?

A. Yes. It is critically important to design a financial model so that the various assumptions correspond to one another in logical fashion. Witnesses Wood and Klick advance arguments about future price trends (they forecast declining prices) that are disassociated from any coherent worldview. For example, these parties describe how competition and technological change may affect prices, but they fail to even mention, let alone forecast, how competition and technological change may affect, e.g., cost reductions and product innovation. By conducting a one-sided analysis, they create an unrealistic worldview where prices decrease, but costs stay the same, and no one innovates. I find this an implausible set of circumstances.

A more comprehensive analysis would consider how the technological changes that may permit, in some circumstances, price decreases do so because they drive cost

decreases, and which (all else the same) will keep NPV the same. A more comprehensive analysis would also consider how the same competition that may spur some price decreases may also spur product innovation, with the net effect being *higher* per-customer spending, rather than lower spending, and a higher NPV rather than a lower NPV. While Mr. Wood and Mr. Klick eagerly speculate about the effects of competition and technology on the prices of the existing portfolio of services, they totally neglect to consider the countervailing effects that competition, technology, and product innovation can have on the total business case and they thereby present a biased view of the future.

I do not recommend trying to forecast any of the effects of these various forces. I believe—and I believe that the FCC supports me (TRO ¶ fn. 1588)—that the result would be unending controversy about the effects that competition and technology would have on prices, costs, innovation, and total spending. Instead, because of the complexities in forecasting technology, competition, and innovation, I conclude that it is more appropriate to (1) assume a given portfolio of existing services (rather than speculate on the availability and diffusion of new services); (2) assume that the prices for this portfolio neither increase nor decrease over time; and (3) assume a constant level of technology so that costs neither increase nor increase over time. This is the coherent worldview that is consistent with the TRO. This coherent worldview contrasts with the biased view offered by Mr. Wood and Mr. Klick in which competition and technology lead to reduced prices but not to

reduced costs nor to the kind of product innovation that would contribute to increased spending per customer.

Q. MR. KLICK CLAIMS THAT PARAGRAPHS 157 AND 518 OF THE TRO PROVIDE SUPPORT FOR MODELING PRICE DECREASES AS A RESULT OF COMPETITION. (KLICK REBUTTAL 33, 43-44.) DOESN'T THIS DEMONSTRATE THAT SUCH PRICE DECREASES SHOULD BE MODELED?

A. No, it does not. Mr. Klick cites as his authority two paragraphs in the TRO (157 and 518). In doing so, Mr. Klick relies on a discussion that is entirely off-topic (having to do with universal service rather than price forecasts) and, in any event, it is a discussion that was roundly criticized by the D.C. Circuit Court in its *Vacatur and Remand*. Moreover, in clutching at these off-point, criticized discussions, Mr. Klick ignores a direct, on-point discussion that FCC has regarding prices and revenues, in footnote 1588.

As I noted, paragraphs 157 and 518 of the TRO do not discuss the merits of forecasted prices. Instead, these paragraphs discuss the sometimes "complex" effects that implicit price supports—such as may exist in local service rates as a result of universal service considerations—may have on competitive entry. The FCC's ruminations on implicit price supports are hardly clarion calls to engage in

price forecasting, as Mr. Klick seems to conclude. Indeed, they have nothing to do with forecasting at all. The FCC merely observes that entry may be accelerated in areas that provide subsidies, and retarded in areas that receive implicit subsidies, and that such implicit subsidies ultimately cannot withstand competitive forces. Indeed, the FCC's vacillations and inconclusive arguments on implicit subsidies were met with especially scathing comments from the D.C. Circuit Court. The Court concluded that the FCC's discussion was essentially vacuous because the FCC made no attempt to connect the discussion to any relevant economic entry barrier that had anything to do with "impairment." According to the Court:

> The interesting case is the one where TELRIC rates are so low that unbundling *does* elicit CLEC entry [despite below-cost retail rates], enabling CLECs to cut further into ILEC revenues in areas where the ILECs' service is mandated by state law—and mandated to be offered at artificially low rates funded by ILECs' supracompetitive profits in other areas. If the scheme of the Act is successful, of course, the very premise of these below-cost rate ceilings will be undermined, as those supracompetitive profits will be eroded by Act-induced competition. In competitive markets, an ILEC can't be used as a piñata. The Commission has said nothing to address these obvious implications, or otherwise to locate its

> treatment of the issue in any purposeful reading of the Act. (*Vacatur and Remand*, p. 26. Emphasis in Original.)

In other words, according to the Court, the FCC appears to recognize that competition can erode implicit subsidies, but the FCC said nothing to address the "obvious implications," nor did the FCC explain how implicit subsidies affect an "impairment" analysis. From my reading of those paragraphs, I conclude that the FCC made no conclusions about the efficacy of price forecasts.

Indeed, as I noted earlier, the single, unambiguous place that the FCC actually addressed the issue of price forecasts is footnote 1588, where the FCC said, in straightforward language:

> [W]e expect states to consider prices and revenues prevailing at the time of their analyses. We believe that these are reasonable proxies for likely prices and revenues after competitive entry and will result in a more administrative standard." (TRO, fn. 1588.)

The FCC instructs state commissions to use existing prices and revenues because they are "reasonable proxies" for the prices and revenues after competitive entry and will be simpler to administer (which would require considering the effect that innovation and technological change might have on prices, costs, and revenues).

Mr. Klick inappropriately clutches at the "rates are likely to change" language in paragraph 518 of the TRO that has to do with the erosion of implicit subsidies in the context of universal service, rather than any directions by the FCC to try to forecast prices (and, one would infer, directions that would likewise require forecasts of costs and innovation as well, in order to shape a coherent worldview).

Because a fair, full analysis requires consideration of all of the factors that can affect prices, costs, innovation, and revenue, and because such an analysis would be fraught with controversy, it is most appropriate from a modeling perspective to stay with the existing portfolio of services, existing prices, and existing costs rather than attempting to forecast changes in all three of these, as would otherwise be required.

Q. DO MR. KLICK'S VARIOUS EXAMPLES OF PRICE DECREASES AROUND THE COUNTRY PROVIDE ANY EVIDENCE THAT ONE SHOULD FORECAST CONTINUED PRICE DECREASES? (KLICK REBUTTAL 36-42.)

A. No. First, the prices that I recommend for use in the BACE model are based on market prices. To the extent that competition already has resulted in price decreases in South Carolina, these are incorporated in the model. Second, as I noted, one should not model a firm whose prices continually decrease as a result of competition and technological change without also considering the effect that these

forces will have on costs, product innovation, and total customer spending, which Mr. Klick fails to do. Considering one outcome (decreased prices) while failing to consider others (increased revenues due to an expanded product portfolio and decreased costs) biases the business case, perhaps substantially. Because of the speculative nature of making forecasts of prices, technology, and competitive responses it is more appropriate to follow the FCC's directive to consider prices and revenues prevailing at the time of the analysis, as I recommend.

I also will note that Mr. Klick's citations to advocacy papers (that he characterizes as "academic literature," but which, to my knowledge have not been published in any academic or peer-reviewed journals) that claim to demonstrate that competition has reduced prices provide no academic consensus that would direct the use of price forecasts in the potential deployment model. (Klick Rebuttal 39.) For example, the paper by Dr. Braunstein simply recites some price decreases. The topic of his paper has to do with UNE costs, not with price forecasting or the *future* of telecommunications prices, costs, technology, and innovation. The paper by Hassett, Inova, and Kotlikoff creates a simulation model that the authors say describes the effects that competition has on the prices and investments by an *unregulated* monopolist. They find that additional competition will cause an unregulated monopolist to increase output and reduce prices. But, this basic economic model hardly characterizes the circumstances in the telecommunications industry generally or in South Carolina in particular, where regulation of retail

prices is the norm. In my view, the model is not suited for assessing real world price performance or investment in the future in the current context. As I noted, since I base my price recommendations on existing BellSouth and CLEC prices, my price recommendations account for the price reductions that have occurred in South Carolina to date. *Revenues* are more important in a business case model than are *prices.* Indeed, prices may be declining while revenues per customers are increasing.

Finally, despite what Mr. Klick calls a "litany" of anecdotes, comprehensive data on wireline telecommunications prices demonstrate that wireline residential *local* telephone prices have increased, not decreased. According to the Bureau of Labor Statistics, landline local telephone rates have not declined since the 1996 Telecommunications Act. On a national basis, local charges associated with landline telephone services for consumers were 27 percent higher in February 2004 than they were in February 1996 when the Act was signed into law, an average annual increase of about 3 percent. The February 2004 prices are also 2.5 percent higher than in February 2003, 7 percent higher than in 2002, 12 percent higher than in 2001, and 18 percent higher than in 2000. Thus, there is no evidence that landline local telephone rates for consumers have decreased since 2000 when UNE-P was implemented in a substantial way.

Q. IS IT REASONABLE TO APPLY A 10 PERCENT DISCOUNT ON ALL REVENUES AS MR. KLICK RECOMMENDS? (KLICK REBUTTAL 55-56.)

A. No. The method that I propose (applying the discount to *a la carte* local services only) applies the discount only to those services where BellSouth has traditionally been the service provider and where, arguably, it may require some reason for customers to make a change. For other services, we rely on effective bundle prices in South Carolina. These prices already reflect competition with BellSouth. It is therefore not reasonable to assume that a firm such as AT&T would have to discount its long-distance services by 10 percent to entice customers to leave BellSouth's long-distance subsidiary. If anything, one might expect that AT&T (or MCI or Sprint or other long-distance carriers) to have long-distance service offered at a premium to BellSouth's offering. Similarly, it does not seem reasonable that a CLEC would have to discount its Internet (DSL) services when BellSouth is simply another broadband competitor.

Q. IS MR. KLICK'S 15 PERCENT DECREASE OF PRICES IN YEAR 1, WITH NO PRICE DECREASES THEREAFTER, A REASONABLE SENSITIVITY? (KLICK REBUTTAL 33.)

A. No, it is not. As I stated above, our prices reflect the prevailing prices in South Carolina today, and there would be no justification for prices to fall by 15 percent in year one.

Q. ISN'T IT TRUE THAT THE COMPETITIVE PROCESS WILL DRIVE REVENUES DOWN? (KLICK REBUTTAL 41-44.)

A. No. Mr. Klick inadequately describes the nature of the competitive process. Even if competition results in lower prices in some instances (such as where prices exceed costs due to implicit subsidies of other prices), other prices may increase. Moreover, competition does not necessarily imply that the *revenues per customer* will decrease over time. While one outcome of competition can be lower prices when prices are substantially above cost, price decreases cannot be expected if prices already are below the competitive level. In fact, competition will undermine any existing cross-subsidies and cause below-cost prices to rise to an economically rational level. Moreover, there is a countervailing factor that these arguments completely overlook, and that is the effect, in a competitive market, of product innovation that entices customers to spend more on existing and new products than had been the case before. This will contribute toward *increased revenue per customer* over time, which will, in turn, will contribute to an increased net present value of the business case, and possibly more "unimpaired" areas.

Out of conservatism, the BACE model does not assume that the efficient CLEC will create innovative new products or that it will derive increased revenues per customer from newly developed products (except through the upward penetration of DSL in the initial years). Instead, we draw from a *fixed portfolio of existing products* that are available today to customers. Mr. Klick's proposal to trend prices downward over time takes a one-sided view of competition because it ignores circumstances where some prices may increase and ignores product innovation that would result in higher total spending per customer. Because there is no way, in my mind, to resolve the issue of whether customers of the efficient CLEC will in the future spend more or less on telecommunications services as a result of product innovation and price competition, I conclude that there is no reason to diverge from the FCC's requirement that we base prices on existing prices and not adjust them (or adjust spending per customer) upward or downward in an attempt to reflect the various factors that influence customer spending. It is more principled to determine spending based on existing prices rather than try to project which factors will dominate among the countervailing influences on spending per customer.

Q. MR. KLICK ALSO ARGUES THAT PRICES WILL DECREASE BECAUSE TELECOMMUNICATIONS IS A "DECLINING COST INDUSTRY". (KLICK REBUTTAL 35.) PLEASE COMMENT.

A. Mr. Klick uses the term "declining cost industry" in the lay sense of productivity improvements over time that reduces a firm's costs. The proper economic definition of "declining cost industry" refers to an evaluation of average costs at different levels of output (when time is invariant). I will respond to Mr. Klick's depiction.

Mr. Klick argues that the efficient CLEC's costs will decrease over time. He concludes, "As costs fall in a competitive market, all other things being equal, prices fall as well." (Klick Rebuttal 35.) While this is true, I see nowhere in Mr. Klick's testimony where he recommends that the same productivity that he claims will reduce *prices* also will reduce *costs* in the model. Mr. Klick's recommendation therefore is biased: he would have us reduce prices to reflect productivity; but he would not have us reduce costs to reflect that same productivity.

Rather than engage in fruitless debates about future productivity rates for the efficient CLEC, our approach is to follow the TRO and use prices that are based on currently prevailing prices. Our cost analysis likewise is based on existing, standard technologies and is not trended downward to reflect gains in productivity.

Q. MR. WOOD CLAIMS THAT PRICES WILL CHANGE IN THE FUTURE BECAUSE AREAS WHERE PRICES ARE HIGH AND COSTS ARE LOW

ARE LIKELY TO ATTRACT COMPETITIVE ENTRY. (WOOD REBUTTAL 26.) PLEASE COMMENT.

A. This is nonsense. First, as I indicated, there really is no "short term" modeling approach for a going-concern business. Mr. Wood fails to understand what a business case entails. A going concern generates a residual, or terminal value, which represents the discounted net value of the firm for the years beyond the explicitly modeled period. The firm's total value is the sum of the explicitly-modeled part and this terminal value. A shorter explicitly-modeled time horizon does not increase the certainty of the estimates; it simply pushes the uncertainty into the terminal value estimate. Any reduction in the number of years that are explicitly modeled requires an offsetting adjustment on the terminal value for the simple reason that value is neither created nor destroyed simply by the number of years that one chooses to explicitly model.

Second, there is no economic reason (and Mr. Wood has provided no such reason) that a constant price assumption implies that a shorter-term explicit model should be used. As I indicated, the total value of the firm should not change simply because the number of explicitly-modeled years is reduced.

The fact that Mr. Wood failed to express his views on the interaction of explicitly-modeled years and the terminal value leads me to conclude that, possibly, he is

uninformed of the role that the terminal value plays in a business case analysis. There is no credible economic theory or process that would change the NPV of a project or going concern simply by lopping off some of the years where value is created.

Q. MR. WOOD ARGUES THAT INTERSTATE TOLL PRICES HAVE DECREASED BY 5.1 PERCENT PER YEAR DURING THE 10-YEAR PERIOD FOLLOWING DIVESTITURE. (WOOD REBUTTAL 29.) IS THIS USEFUL INFORMATION FOR THE POSSIBLE PATH OF LOCAL SERVICE PRICES?

A. Absolutely not. Many will recall that over the past decades, access charge reform changed the way common line costs were recovered, and that this reduced toll costs and prices. Access reform entailed the movement from a per-minute-of-use charge levied on long-distance carriers to a monthly recurring end user common line charge ("EUCL") directly paid by local service end users (as well as a flat-rate charge charged to the carriers). Access charge reform was a regulatory exercise that removed cost recovery from long-distance service variable costs. According to the FCC, from 1984 to 1994, interstate switched access charges decreased by nearly 9 percent per year. Access charges account for a substantial portion of long-distance costs (by one estimate about 40 percent of AT&T's consumer long-distance division's costs), so the access charge decreases made a substantial

contribution to overall cost and price decreases. Mr. Wood does not appear to consider access reform, and so his claims about long-distance pricing are inapplicable indicators of what might occur for local exchange services.

In sum, there is no probative value to the quantitative historical trend of long-distance prices, as presented by Mr. Wood, relative to the future price path of local exchange services at issue in this proceeding. The fact that Mr. Wood finds that NPVs are "significantly reduced" if a 5.1 percent annual price decrease is applied over the 10-year horizon of the BACE model should come as no surprise. (Wood Rebuttal 31.) However, Mr. Wood's number is based on an inapplicable comparison and has not been shown to apply to local exchange service. Moreover, while Mr. Wood seeks to reduce prices, he does not make any corresponding adjustment for costs that reasonably might decrease over the 10-year time horizon.

Q. DOES MR. KLICK MAKE A SIMILAR ARGUMENT ABOUT FUTURE PRICES BY POINTING OUT THAT LONG-DISTANCE PRICES HAVE DECREASED AND MAY CONTINUE TO DECREASE? (KLICK REBUTTAL 40-42, 51-53.)

A. Yes. Mr. Klick argues that long-distance prices may continue to decrease, and he further claims that long distance *volumes* may decrease as well. As I pointed out in my response to Mr. Wood, however, the historic decrease in long-distance prices

can be traced primarily to the effect that access reform has had on the costs faced by interexchange carriers.

It is, of course, unlikely in the extreme that long-distance volumes in the telecommunications industry are decreasing. People are not talking less to one another than they have in the past. Rather, there appears to be a reduced economic rationale for long-distance service on a *stand-alone basis*, and a shift from wireline to wireless long distance. It appears that economies of scope in both wireless and wireline industries between local and long-distance services, as well as the interests of customers in obtaining service bundles, are encouraging carriers to offer combinations of local and long-distance services. (I describe economies of scope in greater detail later in my surrebuttal testimony, and I provide an example in Exhibit DJA-10, which I also describe later, that illustrates how two services that appear unprofitable on a stand-alone basis can be profitable when offered by an integrated carrier.)

Second, and related, is that the shift in long-distance calling volumes from wireline to wireless services has been exacerbated by the relative pricing between these industries. Wireline long-distance prices generally are on a per-minute basis, while wireless long-distance prices often are offered on a "bucket of minutes" basis. To the extent that wireline local service companies continue to meld long-distance and local services, and continue to adopt pricing structures along the wireless model (as

has occurred with several of MCI and AT&T's bundled plans), wireless substitution that is occurring as a result of the wireline industry's per-minute pricing method will be reduced or potentially reversed.

The BACE model accounts for observed changes in the long-distance market by incorporating bundled pricing. The bundles and bundle prices represent actual CLEC offerings. The BACE model also accounts for the fact that when a CLEC leases the UNE loop, the CLEC is able to generate revenues from all of the different services that use the loop, and all of which can provide some contribution to the recovery of this shared cost. Such services that use the loop include long-distance service (and DSL, central office features, and other services such as voice mail). Mr. Klick has presented no evidence that the combined, total revenues that may be available to CLECs using the loop will decrease over time, even assuming that particular volumes and prices associated with one or another of the existing suite of possible services may change.

Moreover, other services that are unknown or which provide little revenue today may become important new additions to the CLEC's suite of services. For example, within the past several years, we have seen first, the rise of features as a source of revenue, and, more recently, the evolution of DSL from a consumer curiosity to an important revenue stream. There is no reason to believe that engineering and marketing innovations are exhausted in the telecommunications

business. However, as I noted, it is more conservative to refrain from speculating about new additions to the product portfolio. Similarly, it is appropriate to refrain from speculating about, e.g., declines in existing products in that portfolio. I had earlier noted that since 2000, local telephone service prices have increased by about 18 percent (about 4.2 percent per year). Just as I do not recommend increasing local telephone service prices by 4 percent per year, I also do not recommend trying to forecast changes in the price of long-distance service.

Q. MR. WOOD CLAIMS THAT IT IS "NONSENSICAL" TO COMBINE CONSTANT PRICES WITH A 10-YEAR MODEL. HE CLAIMS THAT CONSTANT PRICES IMPLY A SHORT-TERM TIME HORIZON FOR THE ANALYSIS. (WOOD REBUTTAL 29.) PLEASE COMMENT.

A. Mr. Wood is incorrect. As I mentioned, the FCC directs us to use prices that are based on those currently in the market. This is wise counsel because otherwise there would be no end to the disputes about future price trends. Our approach, which keeps prices, the product portfolio, *and costs* constant over the forecast period, is more reasonable, and more consistent with the TRO, than is engaging in insoluble debates about technological and product innovations, current and future price-cost relationships, the effects of retail regulations, and competitive dynamics.

E. SERVICES OFFERED

Q. MR. WOOD ARGUES THAT THE RANGE OF SERVICES CONSIDERED IN THE BACE MODEL SHOULD BE WHAT THE CLEC SEEKS TO OFFER, NOT WHAT BELLSOUTH THINKS CLECS SHOULD OFFER. (WOOD REBUTTAL 12-13.) PLEASE COMMENT.

A. At pages 48 and 49 of his rebuttal testimony, Mr. Wood claims that it is inappropriate to consider "non-switched services" (or donuts) that might be used "in order to help pay for the switch." I take it that Mr. Wood is referring to DSL service, which is a non-switched service that can be provided over the same loop that provides switched voice services. The TRO itself provides clear guidance as to what services, including data, should be considered potential revenues in a potential deployment analysis. "The state must also consider the revenues a competitor is likely to obtain from using its facilities for providing *data* and long distance services and from serving business customers." (TRO 519, emphasis added.)

In any event, a simple example will show the error of Mr. Wood's argument. Exhibit DJA-10 illustrates that a CLEC may find it uneconomic to offer either voice service or DSL service alone, but may find that it is economic (i.e., the CLEC can earn zero economic profits) if it offers both. The reason is that there may be

economies of scope in offering switched and unswitched services. As shown in my example, these economies are the result of the common use of the local loop.

The example shows that the profitability of both services benefits from the existence of, and the CLEC's recognition of, scope economies. An efficient CLEC will recognize instances where economies of scope exist, and it will take advantage of them. There is no reason to artificially crimp the potential deployment analysis by failing to recognize the scale and scope economies and any other advantage available to an efficient CLEC. Mr. Wood pejoratively scoffs at the notion that the CLEC should engage in a fundraiser by selling donuts on a street corner to help pay its switching costs. Of course, this absurd example illustrates an instance where there are no economies of scope (one presumes) between providing telecommunications services and providing donuts.

Mr. Wood plays lightly with the Commission's time by creating a misleading example and by failing to address the genuine issue of economies of scope that should be considered when evaluating the profit opportunities open to an efficient CLEC. My simple example demonstrates the power that such economies can have. Economies of scope can provide a way of changing the results of a business case from one that appears to have no promise in *either* voice or DSL service, to one that appears to offer an economic return if *both* are offered. This is the issue that

this Commission should consider, and not examples that treat this proceeding as a farce.

F. CHURN

Q. PLEASE COMMENT ON DR. BRYANT'S CLAIM THAT ANY INPUT TO THE BACE MODEL (REGARDING CHURN) THAT RELIES EXCLUSIVELY ON THE ACTUAL EXPERIENCE OF UNE-P FIRMS WILL BE UNDERSTATED. (BRYANT REBUTTAL 37.)

A. Dr. Bryant claims that churn based on the experience of UNE-P-based carriers will be understated for the same reasons that he provided in his discussion of market share. These reasons were (1) BellSouth winback programs; (2) CLEC service prices; (3) CLEC service quality; (4) the availability of hot cuts; (5) the ability of the CLEC to bring new services to market; (6) the costs of those new services; and (7) the ability or inability of the CLEC to offer broadband using the ILEC's new infrastructure capabilities. (Bryant Rebuttal 36-37.) However, Dr. Bryant actually engages in mere hand waving because he does not discuss these factors at all as they relate to churn, and he certainly does not explain why *all* of these factors would lead to an understatement of churn that is based on the experience of UNE-P providers. A closer examination shows that this claim has no basis.

For example, there is no reason to believe that ILECs' winback offers affect a switch-based CLEC any differently than it affects a UNE-P-based CLEC (and Dr. Bryant fails to explain why it would). Indeed, this would conflict with Dr. Bryant's argument in his direct testimony that a switch-based CLEC would have the incentive to reduce its price below that of a UNE-P-based CLEC in order to retain customers. (Bryant Direct 80-81.) The theory is flatly inconsistent with his discussion on churn.

It also appears that a number of the other factors cited by Dr. Bryant may be associated with *lower*, not *higher*, churn for a switched-based CLEC than might be observed with UNE-P providers. For example, a switch-based CLEC has more control of its own service quality than does UNE-P CLEC simply because it has a reduced reliance on the ILEC network. The switch-based CLEC also has the incentive and ability to manage its switching resources so as to reduce costs, perhaps by investing in a newer generation of technology. (Although the BACE model considers a CLEC that uses traditional circuit switching technology, a real-world CLEC may elect to use more advanced packet switches, if these are less costly.) Finally, a switch-based CLEC can implement new products without working through a third party (i.e., the ILEC) to do so. In sum, a switch-based CLEC has more control of quality, better ability to manage costs, and an enhanced ability to offer new services than does the UNE-P-based CLEC, which reasonably would suggest lower, not higher churn.

Q. MR. WOOD ARGUES THAT YOUR USE OF AN "INDUSTRY-WIDE CHURN RATE" REFLECTS THE EXPERIENCE OF ILECS (AS WELL AS CLECS) AND IS THEREFORE BIASED LOW BECAUSE THE ILEC BASE OF CUSTOMERS IS UNLIKELY TO CHANGE PROVIDERS. (WOOD REBUTTAL 46.) PLEASE COMMENT.

A. Mr. Wood's argument is incorrect. First, I do not base my churn assumptions on any one report, but on the reported churn rates for a variety of CLECs, as I explained in my direct (and rebuttal) testimonies. Moreover, with respect to the one report to which Mr. Wood refers, his discussion is misleading because he fails to tell the whole story. Mr. Wood cites to page 33 of my direct testimony as using an "industry-wide churn rate." A casual reading of that paragraph shows that I am discussing the results of a Morgan Stanley survey of *business customers*. Thus, Mr. Wood's (unsupported) conclusion that my proposed churn rates are understated because of "the presence of a base of [ILEC-served] customers who are unlikely to change providers in response to competitive alternatives," (Wood Rebuttal 46.) fails to note that these are *business customers* that he is talking about.

This is an important omission because business customers are unlikely to have an irrational bias against changing providers. Businesses can be expected to make a rational evaluation of a CLEC's service offering, and it is safe to assume that they

generally are among the more savvy telecommunications services end-users. Businesses have the incentive, especially in this economy, to aggressively manage their costs and resource use. Any churn rate related to business customers is not biased either way by including the ILEC experience with its business customers. Moreover, the *efficient* CLEC should be able to reduce its churn rate to that of the ILEC for business customers through, e.g., term contracts, superior service, and the like. Indeed, recent statistics I have seen suggest that in the business market, ILEC churn may exceed CLEC churn.

Q. DO YOU HAVE ANY COMMENTS REGARDING MR. WOOD'S DISCUSSION OF YOUR ESTIMATE FOR "CHURN"?

A. Yes. My recommended churn rate for residential customers is 4 percent, which is the same rate that Z-Tel experienced, according to investment analysts, and it is also the same rate that Z-Tel told the FCC that it experienced. (TRO 471.) Moreover, according to the FCC, Z-Tel claims that "carriers in a competitive market cannot expect to keep any particular customer for more than 18-24 months," (TRO 471) which implies a monthly churn rate of 2.9 to 3.9 percent. In my direct testimony, I also noted an investment analyst report by Banc of America. This report estimates that AT&T's own local experience is on the order of 4.6 percent. It is entirely disingenuous to suggest that an efficient CLEC cannot attain a 4 percent churn rate for its residential customers.

Q. MR. WOOD CLAIMS THAT RELIANCE ON WIRELESS CHURN RATES IS "MISPLACED" BECAUSE THE WIRELESS INDUSTRY HAS (TO THIS POINT) HAD NO NUMBER PORTABILITY AND BECAUSE IT USES TERM CONTRACTS. (WOOD REBUTTAL 46.) PLEASE COMMENT.

A. I specifically examined the issue of number portability in my direct testimony (although Mr. Wood does not acknowledge this in his rebuttal testimony). On pages 32-33 of my direct testimony, I explained that analysts at Banc of America Securities held the view (with which I agree) that wireless churn was indicative of local churn; though local churn may be higher due to number portability. Wireless churn is on the order of 2.6 percent. I recommend a residential churn rate of 4 percent, or some 54 percent higher than the wireless churn rate. This is in line with the 4.6 churn rate that Banc of America estimates for AT&T's own local services (which may not be an efficient CLEC). It is also in line with the estimate of a Morgan Stanley investment analyst report that I noted (page 33) in my direct testimony. Finally, I noted in my testimony that at least one analyst estimates that wireless number portability will increase wireless churn rates by about 50 percent, which will put them at about 4 percent, or, in other words, about the same as my estimate for an efficient CLEC serving its residential customers.

The efficient CLEC can reduce churn by introducing attractive, useful new services, pricing plans, billing options, and the like that the ILEC does not offer. Thus, churn is at least in part a management issue—it is a cost that a carrier actively must try to manage. I find it very disingenuous, and smacking of a defeatist self-pitying attitude to argue, as Mr. Wood does, that the ILECs "effectively dictate CLEC churn rates" going forward. (Wood Rebuttal 46.)

G. SALES COSTS

Q. MR. WOOD CLAIMS THAT THERE IS A MISMATCH BETWEEN CUSTOMER ACQUISITION COSTS, WHICH APPLY TO A NARROW RANGE OF SERVICES, AND THE BROAD RANGE OF CUSTOMER SERVICES THAT THE MODELED CLEC IS SAID TO OFFER. (WOOD REBUTTAL 51.) PLEASE COMMENT.

A. I disagree. This argument does not apply to business customers, because my recommendation for customer acquisition costs is derived from a multiple of average monthly revenues. Thus, the broader or more expensive the services, the higher is the implied customer acquisition cost. For residential customers, however, I propose a flat $95 per customer location. My recommendation of residential acquisition costs of $95 is sufficient to accommodate the entire portfolio of services. My parameter value is based on the experience of existing UNE-P-

based firms such as Z-Tel (which has a target of $50) and Talk America (whose actual costs are estimated to be $80). My parameter value of $95 is substantially higher than either. Moreover, as I explained in my direct testimony, Hazlett and Havenner describe why existing UNE-P-based firms that operate in areas that legitimately are unimpaired have the incentive to inefficiently increase their customer acquisition costs. Therefore it may be the case that Talk America's customer acquisition costs are inefficiently high.

I can demonstrate that my proposal is sufficient to accommodate customers who order DSL as well as voice services. Consider the example that I show in Exhibit DJA-11. This exhibit shows that customer acquisition costs, based on the Z-Tel and Talk America figures, are on the order of $50 to $80. I compute an incremental customer acquisition cost associated with DSL from data provided by Dr. Bryant. For those customers who obtain *both* voice and DSL service from the efficient CLEC, customer acquisition costs should be on the order of $150 to $180. In the BACE model, this represents approximately 15 percent of a CLEC's customers. The other 85 percent obtain voice services only. Thus, the weighted average customer acquisition cost for the portfolio of services should be on the order of $64 to $95 for the average customer, yet the BACE model applies $95 to *every* customer.

Q. PLEASE RESPOND TO DR. BRYANT'S ADDITIONAL CRITICISMS OF YOUR CUSTOMER ACQUISITION COSTS. (BRYANT REBUTTAL 37-39.)

A. Dr. Bryant makes several claims. He says that my customer acquisition costs are, at the low end, based on the Z-Tel experience. (Bryant Rebuttal 38.) This is only partly true. I considered customer acquisition costs for Z-Tel, Talk America, and AT&T as shown in Revised Exhibit DJA-06 in my Rebuttal testimony, all of which are wireline, local exchange providers. (Moreover, this applies only to residential acquisition costs.)

Dr. Bryant then claims that his sources, which evidently rely on Dr. Gabel's NRRI model (which Dr. Bryant uses), range from $80 to $400. He says that these are from the "same types of sources" that I used. (Bryant Rebuttal 38.) That is not true. According to Dr. Bryant, the $400 estimate is for a *wireless provider*. I did not consult wireless providers to create my estimate because the differences between the wireline and wireless industries on this particular dimension invalidate any simplistic comparison of customer acquisition costs. As should be well known, wireless providers often underwrite the cost of the handset. Neither Dr. Bryant nor Dr. Gabel appears to make any adjustment for that. This invalidates any simple, direct use of wireless providers as indicators of customer acquisition costs for an efficient wireline CLEC. Moreover, as I indicated, wireless churn is on the order of

2.6 percent per month, which is substantially less than the 4 percent for residential customers that the BACE model uses. Accordingly, wireless providers reasonably can afford to spend more on customer acquisition, since their average customer stays with them half-again as long as does the efficient CLEC's customer (i.e., 27 months versus 17 months).

The one item of Dr. Bryant's that corresponds to some of my data is the claim that Z-Tel's customer acquisition costs are on the order of $80. This is reasonably consistent with the estimate that I obtained for Z-Tel of $60-70, with a management goal of $50. (See Revised Exhibit DJA-06 in my Rebuttal Testimony) I will note that this is about the same as the Talk America experience, and it is about 15 percent less than my recommendation. But, Dr. Bryant is recommending $130. *None* of the CLEC data that Dr. Bryant considers (Dr. Gabel's or my own) provides him with any legitimate support for his $130 customer acquisition cost. It is only by misapplying the wireless experience that he is able to "justify" his recommendation.

Q. WHAT JUSTIFICATION DOES DR. LOUBE PROVIDE FOR THE USE OF $130 PER CUSTOMER AS HIS SALES COST ESTIMATE? (LOUBE REBUTTAL 36.)

A. Dr. Loube provides no real justification. He simply refers to the fact that the $130 is used by Dr. Gabel in his model. In my rebuttal testimony, and as I noted above, I described why the default value found in Dr. Gabel's model was unsupported and extreme (it is higher than any CLEC estimate that I have seen from any investment analyst). I will not repeat those arguments, but I find it disingenuous that Dr. Loube would present a proposal to this Commission that fails to respond to, or even acknowledge the existence of, the criticisms to these very data that I provided in my rebuttal testimony and that were available to him for review.

Q. DR. BRYANT CLAIMS THAT CUSTOMER ACQUISITION COSTS ARE "UNKNOWABLE" IN A POST UNE-P MARKET. (BRYANT REBUTTAL 38.) PLEASE RESPOND.

A. As I noted earlier in this testimony, complete and absolute certainty is not required to make a reasoned and reasonable estimate of customer acquisition cost, or any other variable required for the potential deployment analysis. Dr. Bryant returns to this argument to advocate running "scenarios" where the customer acquisition costs in a post-UNE-P market substantially exceed those for UNE-P-based firms. (Bryant Rebuttal 38-39, MTB-9 and MTB-11.) In making this argument Dr. Bryant does not try to rebut, nor does he even mention, the Hazlett and Havenner discussion. Because he does not address this, he cannot legitimately claim that

customer acquisition costs for a switch-based CLEC will "substantially exceed" those of UNE-P-based firms.

Moreover, the CLECs themselves do not appear to support Dr. Bryant's claim. MCI submitted to the FCC an *ex parte* study that purported to compare the incremental cost of the change from serving residences via UNE-P to UNE-L. The study excluded marketing and customer service costs, which indicates that the modelers did not see fit to change them (i.e., increase them for a UNE-L provider).

H. G&A

Q. DR. ARON, YOU RECOMMEND THAT G&A EXPENSES BE MODELED AS A PERCENTAGE OF REVENUE, AS DETERMINED FROM AN ANALYSIS OF ILEC DATA. PLEASE DESCRIBE WHY SUCH AN ANALYSIS SHOULD APPLY TO THE G&A COSTS OF AN EFFICIENT CLEC. (WOOD REBUTTAL 51.)

A. There are two important countervailing advantages that suggest that the G&A expenses associated with an efficient CLEC can reasonably be equal to or even less than those of ILECs. First, as I have noted, the CLEC that we have elected to model is a new entrant into the market. This provides us with a very conservative starting point because, in reality, CLECs are not new entrants, they have an existing

base of operations and some, such as AT&T and MCI, are substantial firms in their own right. These firms have the ability to serve multiple markets and to adjust their G&A resources accordingly. It is reasonable that they should be able to at least meet the traditional cost structure of the ILEC. An evaluation of an estimate of G&A expenses should keep in mind the reality that the efficient CLEC reasonably could be modeled as part of a much larger firm, such as AT&T or MCI, and that these larger firms should be able to efficiently adjust the resources that they devote to G&A in the various markets that they serve. I would also note that my analyses included many large and small ILECs, not only the four major ILECs.

Moreover, from an entirely different perspective, there are countervailing advantages that are open to a smaller CLEC. A smaller, efficient CLEC that does not bear the regulatory burdens of an ILEC may be able to implement a more streamlined organization than the ILECs traditionally have had. Thus, providing the efficient CLEC with G&A expenses that have the same percent of revenue as the ILEC's is reasonable.

In addition to these countervailing advantages, I will also add that the method of analysis that I used to determine the appropriate ratio for the efficient CLEC was based on the accounts from the ILEC data that CLECs normally include in their own G&A expenses. In this way, I ensured that there was comparability between

the type of G&A expenses that were being measured and their applicability for the efficient CLEC.

I. CREAM SKIMMING

Q. PLEASE RESPOND TO MR. WOOD'S DISCUSSION ON CREAM SKIMMING. (WOOD REBUTTAL 34-39.)

A. Mr. Wood devotes considerable attention to the issue of cream skimming. Remarkably, he claims that CLECs do not engage in cream skimming. He tries to draw a meaningless distinction between what he would call cream skimming (which he says refers to the results of, e.g., marketing programs to draw the most profitable customers) and customer self-selection, which, as I will describe, is simply another way of implementing cream skimming. In any event, in a separate docket in Texas, one of AT&T's witnesses, Phillip L. Gaddy, admitted the obvious, that cream skimming (or what Mr. Gaddy referred to as "cherry picking") is "simple business common sense." (Gaddy Rebuttal Testimony before the Public Utility Commission of Texas, Docket No. 28600, January 5, 2004, p. 20.) Indeed, AT&T's own Chief Executive Officer, David Dorman, has admitted to customer targeting. At a recent investors conference AT&T Chairman and CEO David W. Dorman stated:

> We continue to take a targeted approach to attract and retain high-value customers to our bundled services offerings, allowing us to drive profitability in this area of our business. (AT&T Press Release, "AT&T Chairman Outlines Aggressive Competitive Strategy at SCFB Conference," (December 11, 2003). Downloaded from http://biz.yahoo.com/prnews/031211/nyth130_1.html (quoting AT&T Chairman and CEO David W. Dorman) on December 15, 2003.)

On page 36 of his rebuttal testimony, Mr. Wood presents a discussion of marketing activity that he claims is not cream skimming. He argues that a disproportionate number of the more profitable long-distance customers "self-selected" themselves and left AT&T, because they could obtain greater savings elsewhere. (Wood Rebuttal 36.) This admission succinctly describes the use of pricing plans to skim the cream. Pricing plans are a very common, powerful, and efficient way to cream skim. Indeed, if Mr. Wood had more carefully read my direct testimony he would have seen that in discussing the issue of "countervailing advantages" that are available to CLECs, I described precisely the situation that Mr. Wood observed in the long-distance businesses:

> The ability to target attractive customers selectively is one such advantage that CLECs have exploited in reality and is highlighted in

> the TRO (. . .). For example, suppose a CLEC determines that it is only profitable to sell to customers who spend at least $60 on local service, features, and long-distance service. The CLEC would then enter the market with a $60 service bundle so that, by self-selection, most of the customers acquired would be profitable. (Aron Direct 22.)

These price plans skim the cream because they are meant to discourage customers that spend substantially less than $60 on local service, features, and long-distance services from subscribing with the CLEC. In other words, the CLEC in my example did not seek to "identify" customers in the normally-understood sense of that term (e.g., actively calling them or looking for them), nor did it create a "marketing plan" in the sense of hailing high-spending customers. The CLEC simply designed its prices to attract high-profit customers (those that spend at least $60) and discourage low-profit customers (those that spend far less than $60) and let the customers skim themselves. This is cream skimming, and Mr. Wood admits to this strategy. Mr. Wood apparently seeks to draw some type of distinction between marketing to higher-spending customers and customers "self-selecting," based on the design of the offer's price, as if there were some type of meaningful difference between the two. For purposes of the BACE model, there is no meaningful difference.

Q. HOW CAN MR. WOOD ARGUE THAT CLECS THAT SELF-PROVISION SWITCHES DO NOT HAVE AN INCENTIVE TO CREAM SKIM? (WOOD REBUTTAL 37-38.)

A. The argument is obviously incorrect. Mr. Wood argues that a CLEC has the incentive to "obtain all customers served by [a] wire center." (Wood Rebuttal 37.) Mr. Wood also claims that a CLEC will seek to serve as many customers as it can as quickly as possible. Both of these reasons are nonsense.

Quite plainly, a CLEC has absolutely no incentive to serve customers that do not provide the CLEC with a positive contribution over their expected lifetime of service. Moreover, the prices of packages that I observed marketed on web sites indicates that the CLECs offered bundles on the order of $50 rather than bare-bones local service. The higher-priced bundled packages may be offered to everyone, but the packages are *specifically designed to dissuade* those who only wish to purchase bare-bones local service, and instead they are specifically designed to appeal to those who spend substantially more. (They may also attract those who, on average, currently may spend somewhat less than the offered price, but want the assurance and safety of a flat rate, or value the additional services more than their incremental price.)

Q. BUT, IS IT NOT TRUE, AS MR. WOOD ARGUES, THAT A LOW-SPENDING CUSTOMER IS BETTER THAN NO CUSTOMER AT ALL? (WOOD REBUTTAL 39.)

A. Not necessarily. If it costs $50 to acquire a new customer, but that customer contributes only $40 in margin (i.e., revenues less variable costs) over his or her tenure with the CLEC, then it is more costly to the CLEC to obtain that customer than to have no customer at all. Such a customer does not help the CLEC contribute to the recovery of large fixed costs; instead, that customer becomes a cash drain on the firm and contributes negative value (or NPV).

Q. MR. WOOD CLAIMS THAT THE BACE MODEL DOES NOT PROPERLY MODEL CREAM SKIMMING BECAUSE A PARTICULAR HIGH-SPENDING CUSTOMER MAY CHANGE HIS OR HER SPENDING HABITS IN THE FUTURE AND BECOME A LOWER-SPENDING CUSTOMER, AND THE BACE MODEL DOES NOT APPEAR TO TRACK THAT. (WOOD REBUTTAL 35.) PLEASE COMMENT.

A. Mr. Wood's criticism is nonsense. First, I note that if current spending patterns did not signal relatively attractive customers to CLECs, we would not be seeing the attempted customer targeting AT&T's CEO acknowledges, and that is virtually ubiquitous among CLECs – why target high-spend customers if they are going to

be low spend customers in the future? Moreover, CLECs' bundled pricing plans commit customers to spend levels by offering multiservice, bundle plans that include usage, features, and so forth. The fact that these plans pre-determine revenue levels is part of their beauty from a CLEC perspective, and would effectively combat the concern raised by Mr. Wood.

Mr. Wood is arguing in effect, that one must track particular individuals and cohorts over time and determine whether their spending increases or decreases. This is not necessary, it is not advisable, and it makes no economic sense. Instead of tracking each individual's spending habits over time, one merely needs to track the aggregate pool of customers by spending level. Individual spending patterns may change (some customers may increase their spending over time and some may decrease their spending over time), but, overall our assumption, and the assumption used in the BACE model, is that the averages within each spending category will neither increase nor decrease. The CLEC can seek to serve those in the higher-spending quintile or tercile. If a particular customer's spending declines (and another customer's spending increases), the individuals may change their quintile, but it is still the case that the CLEC will target the higher spending customer, by, for example, tailoring its pricing plans so as to appeal to higher-spending customers. The fact that we use a 4 percent residential churn rate (which exceeds the churn that one would expect simply from demographic moves) helps account

for the fact that customers elect to join and leave the CLEC as a result of a multitude of factors, including changes in spending patterns.

Q. MR. WOOD CLAIMS THAT THE BELLSOUTH LINE LOSS DATA PROVIDES THE "SOLE STATED BASIS" FOR YOUR CONCLUSION REGARDING CREAM SKIMMING. (WOOD REBUTTAL 35.) IS THIS TRUE?

A. No. Mr. Wood appears to be ignoring a wealth of evidence that I have presented and that, indeed, other CLECs have admitted to. For example, Mr. Wood ignores the comments made by his client's own Chief Executive Officer that plainly describe to investment analysts AT&T's goal of targeting the more attractive telecommunications customers. Mr. Wood also ignores the fact that other CLECs have admitted to the obvious, and that is that they seek the more profitable customers. Indeed, as far back as the Florida proceeding, Sprint filed testimony to this effect, and, as a participant in that case, Mr. Wood would have had access to it. Mr. Wood also ignores the fact that other AT&T witnesses in other proceedings (which I presented in my direct testimony) admit that AT&T targets more attractive customers. Finally, Mr. Wood ignores basic economic principles of customer targeting that I described in my direct testimony. Indeed, when all of the evidence is assembled, it is Mr. Wood who appears to have staked out the unsupported,

untenable and extreme position that CLECs do not target more attractive customers.

J. DSL CROSS-PENETRATION

Q. MR. BRADBURY CLAIMS THAT YOUR PENETRATION RATES FOR DSL FOR RESIDENCES AND FOR SMALL ("SOHO") BUSINESSES ARE TOO HIGH. (BRADBURY REBUTTAL 14-15.) PLEASE COMMENT.

A. First, let me clarify that I do not assume 15 percent penetration in year one. I assume 5 percent penetration in year 1 and that increases to 15 percent in the third year for residential customers. Similarly, I assume that DSL penetration for SOHO customers increases from 10 percent in year 1 to 25 percent in year 3. Also, my DSL penetration rate is *contingent on* the CLEC winning the voice line. Accordingly, a 15 percent DSL penetration in year 3 translates into about 2 percent of the total residential customer locations in the market that are obtaining DSL service from the CLEC, and about 3.3 percent of total SOHO customer locations obtaining DSL service from the CLEC. I would think that these estimates are well within the mainstream expectations for broadband penetration. Moreover, the 15 percent residential penetration (and the 25 percent SOHO penetration) are merely "inputs" to the BACE process. The model computes the 15 percent (or 25 percent) penetration *only on DSL compliant loops*. Thus, actual, effective year 3 DSL

penetration for the CLEC is less than 15 (or 25) percent. In other words, if only 75 percent of the residential loops in a wire center can support DSL, the actual (or "output") penetration rate for residential DSL would be about 11 percent (i.e., 75 percent x 15 percent).

The only evidence that Mr. Bradbury presents to support his claim that my estimates are too high is his claim that BellSouth's "current penetration rate" for its retail FastAccess Service is approximately 6 percent. Mr. Bradbury does not indicate the vintage of his data, but DSL penetration has been growing robustly. For example, a study by Cahners In-Stat suggests that DSL revenues will increase by 54 percent per year through 2005. (Cahners In-Stat, "U.S. Residential DSL Market Continues to Grow," October 2001, p. 2.)

The robust growth potential applies to small businesses as well. As long ago as 1999, firms with 1-4 telephone lines, 47.8 percent had access to the Internet through dial up or high-speed means. (U.S. Small Business DSL Services Market Assessment and Forecast, 1998-2003, International Data Corporation, October 1, 1999, p. 12) This represents an opportunity for CLECs to market broadband services. BellSouth proprietary data regarding DSL penetration for its smaller business customers, which I reviewed, showed that as of August 2003, there was penetration ***[redacted]

[redacted]***.

Finally, Mr. Bradbury ignores the fact that the efficient CLEC, executing the most efficient business model, can target those customers who are more likely to want broadband along with their voice service. This permits the efficient CLEC to increase the proportion of *its* customers who have DSL even beyond the overall market penetration rate. A penetration rate of 15 percent for CLEC-served customers can be consistent with an *overall* DSL penetration of *less than 15 percent* for all residential customers.

Such targeting appears to be occurring with real-world CLECs. According to computations that I made based on DSL penetration data from Cahners In-Stat and on overall line penetration data from the FCC (for approximately the same period of 2001), CLECs (including IXCs) served about 15 percent of DSL lines, while according to the FCC, CLECs accounted for about 9 percent of total lines. This indicates *an above-average propensity for CLEC voice customers to subscribe to DSL*. The penetration rates that I recommend for residences and SOHO (which do not increase above 15 percent for residences, or above 25 percent for SOHO customers) are conservative and consistent with these observations.

Q. MR. KLICK ARGUES THAT MANY OF TODAY'S CLEC CUSTOMERS DO NOT OBTAIN DSL FROM THEIR UNE-P-BASED SERVICE PROVIDERS. (KLICK REBUTTAL 48.) PLEASE COMMENT.

A. Whether this is true is not relevant for considering the capabilities of the UNE-L-based CLEC in providing DSL services to its customers, since the UNE-L-based CLEC has the authority to provide such services on the loop that it leases. Moreover, in creating the business case for the efficient CLEC, the TRO directs us to consider *all* potential revenues. (TRO 519.) Indeed, the TRO specifically states that:

> The state must also consider the revenues a competitor is likely to obtain from using its facilities for providing data and long distance services and from serving business customers. (TRO 519, footnote omitted.)

Q. MR. KLICK LISTS A SERIES OF REASONS THAT HE CLAIMS PREVENTS HIM FROM MAKING A DETAILED ANALYSIS OF THE BACE MODEL'S DSL CROSS-PENETRATION ASSUMPTIONS. (KLICK REBUTTAL 48-49.) PLEASE COMMENT ON THESE.

A. Yes. Although Mr. Klick writes in the third person, he essentially admits not being able to understand (1) how the residence and business categories were derived in each wire center; (2) DSL cross-penetration for each of the spend quintiles or terciles; and (3) DSL costs used in the BACE model. Mr. Klick also claims not to understand precisely the extent to which DSL service is provided by different types of carriers (ILECs, CLECs, and DLECs). I have explained the derivation of all of these in my direct, rebuttal, and this testimony; I have been deposed in Florida on the estimates that I provided to the BACE model (the transcript to which Mr. Klick would have access); I have provided programs and workpapers in multiple rounds of discovery. If Mr. Klick does not understand how these inputs were developed, I refer him to this record.

Q. DR. LOUBE THINKS THAT IT IS A PROBLEM THAT MORE CUSTOMERS PURCHASE DSL *A LA CARTE* (ALONG WITH THEIR LOCAL SERVICE) THAN AS PART OF A "BUNDLED" LOCAL SERVICE PRICING PACKAGE. (LOUBE REBUTTAL 34-35.) PLEASE COMMENT.

A. There is no problem at all. There are more customers purchasing DSL on an *a la carte* pricing basis from the efficient CLEC than in a bundled packaged simply because, in South Carolina, there are more *a la carte* customers served by the efficient CLEC.

In South Carolina, there is a relatively high spread between bundled and *a la carte* prices in the market, and most customers would pay less, overall, buying services on an *a la carte* basis when they do not wish to purchase the full set of services included within the bundle. Hence, the BACE model assumes most customers would choose *a la carte* rather than bundled offerings. Given the relatively large number of *a la carte* customers, it follows that most of the DSL purchases will be made by customers on *a la carte* plans. The BACE model is designed to assign DSL purchases to higher-spending customers rather than lower-spending customers, but the model still finds that *a la carte* customers spend enough, in South Carolina, to also purchase DSL.

However, even though in terms of sheer numbers there are more middle-level spending customers than high-spending customers who buy DSL, the higher-spending customers have a greater *likelihood* (i.e., DSL purchase per customer) to purchase DSL.

Dr. Loube's conceptual error can be seen in the results regarding DSL penetration that he presents in his Loube Exhibit 4. This exhibit purports to demonstrate that Quintile 3 (medium-spend) customers buy more DSL than do Quintile 1 (high-spend) customers, which he claims is an "imbalance." (Loube Rebuttal 35.) What Dr. Loube fails to recognize is the fact that the modeled CLEC simply attracts more

Quintile 3 residential customers than Quintile 1 customers. This is based on my research that demonstrates that CLECs are more successful at attracting medium-spend residential customers than the highest-spend customers, so this is what the model reflects.

For example, under the base-case assumptions, the CLEC attracts 134 Quintile 3 customers for every 110 Quintile 1 customers. Thus, to put the data found in Loube Exhibit-4 onto a comparable, per-customer propensity basis, each of the DSL quantities shown in the "Quintile 3" line must be divided by 134, and each of the DSL quantities shown in the "Quintile 1" rows must be divided by 110. Such a computation demonstrates that Quintile 3 customers have a lower propensity to purchase DSL services than do Quintile 1 customers, as is expected. Alternatively, Dr. Loube's reported "Quintile 3 as a Percent of Quintile 1" would have to equal 122 percent in order for Quintile 3 customers to exhibit the same propensity to purchase DSL as Quintile 1 customers. However, Dr. Loube's maximum percentage is only 115 percent.

Q. PLEASE COMMENT ON DR. LOUBE'S RECOMMENDATION TO CUT IN HALF THE DSL PENETRATION RATE. (LOUBE REBUTTAL 34-35.)

A. This proposal makes no sense. Dr. Loube did not criticize the overall DSL penetration rate. Instead, as is noted, he observes only that more DSL is sold to

certain *a la carte* customers than is sold to other bundled service customers. Cutting in half the DSL penetration rate for all customers does nothing to ensure that bundled customers have a higher propensity to buy DSL than do *a la carte* customers. Dr. Loube provides no argument or evidence that the overall DSL penetration rate is incorrect or unrealistic.

K. PURCHASING POWER

Q. DOES MR. KLICK ARGUE THAT CLECS WOULD HAVE LESS PURCHASING POWER THAN BELLSOUTH? (KLICK REBUTTAL 47.)

A. Mr. Klick makes only the oblique argument that if the CLEC is substantially smaller than BellSouth, as might be the case if it is serving only 3 markets, it may not receive the same vendor discounts. However, Mr. Klick provides no real evidence on this point, or any reason why the efficient CLEC, executing the most efficient business plan, would fail to serve other markets in the state. I will point out that Mr. Klick's client, AT&T, is an enormous telecommunications carrier and likely can avail itself to any vendor discounts as well. AT&T has ongoing relationships with switch vendors. Indeed, AT&T used to own one of the major switch manufacturers (Lucent). MCI and Sprint are other national telecommunications providers with substantial purchases of equipment. It is not credible that these CLECs cannot also obtain vendor discounts.

Q. ON WHAT BASIS DOES DR. LOUBE ARGUE THAT THE EFFICIENT CLEC WILL HAVE LESS PURCHASING POWER THAN THE ILEC? (LOUBE REBUTTAL 32-33.)

A. Dr. Loube first argues that BellSouth is larger than Nuvox, Xspedius, and KMC Telecom. This undoubtedly is true. But, by the same token, AT&T, MCI, and Sprint are substantial, national companies in their own right with considerable capital spending budgets. In other words, Dr. Loube is offering as examples CLECs that *may* have a disadvantage in purchasing capital equipment relative to BellSouth although he provides no data demonstrating that this is so.

Dr. Loube also argues that BellSouth will have superior purchasing power because he expects that it will buy more digital loop carriers ("DLCs") than will AT&T and MCI. However, Dr. Loube's analysis is incorrect for at least two reasons. First, Dr. Loube's analysis confuses stocks with flows. He makes no distinction between the number of DLCs that BellSouth and AT&T may *currently have*, and the number of *additional* DLCs each will require in the future. Insofar as BellSouth already has installed all, or the majority of the DLCs that its network requires, it will only be purchasing additional DLCs as a result of, e.g., growth or replacement over time. In contrast, to the extent that an AT&T must, as Dr. Loube argues, install DLCs in all of the wire centers where it seeks to offer local service using its

own switching, an AT&T will be installing substantial numbers of DLCs. It is therefore quite likely that a significant part of forward looking equipment demand will come from CLECs, not ILECs, and that equipment vendors will seek to curry favor, and orders, from the former. Dr. Loube's analysis has no merit unless and until he corrects his perspective from one of examining the sheer number of DLCs used in the network to one where he examines the *additional* DLCs that are required on a going-forward basis.

Dr. Loube's analysis is also flawed because he makes no demonstration that discounts are driven by DLC purchases, rather than, e.g., total equipment purchases. A national firm such as an AT&T that spends more on capital than does BellSouth may be able to get discounts on equipment that is used in local services based on the company's spending on its other services, such as long-distance. AT&T's cash capital spending in 2003 was $3.1 billion is comparable to BellSouth's $3.2 billion. It is highly unlikely, in my view, that AT&T would pay 20 percent more for its equipment than does BellSouth, as Dr. Loube argues. Indeed, Dr. Loube's proposed 20 percent add-on is totally unsupported and amounts to nothing more than an *ad hoc* cost disadvantage applied to the efficient CLEC.

Q. DOES THIS COMPLETE YOUR SURREBUTTAL TESTIMONY?

A. Yes.

DEMONSTRATION THAT THE AGGREGATION OF RESIDENTIAL MARKET SHARES FOR DIFFERENT SPEND QUINTILES PRODUCES AN OVERALL RESIDENTIAL MARKET SHARE OF APPROXIMATELY 15 PERCENT

	Customer Segment	Ultimate Penetration
	Quintile 1	16.47%
+	Quintile 2	16.63%
+	Quintile 3	20.10%
+	Quintile 4	14.21%
+	Quintile 5	7.52%
=	Total	74.93%
/	Divided by 5	**14.99%**

Source:
Input percentages from BACE table tblPenCurvesForProducts.

DEMONSTRATION THAT THE AGGREGATION OF SOHO MARKET SHARES FOR DIFFERENT SPEND TERCILES PRODUCES AN OVERALL SOHO MARKET SHARE OF APPROXIMATELY 15 PERCENT

	Customer Segment	Ultimate Penetration
	Top	32.70%
+	Middle	8.50%
+	Bottom	3.60%
=	Total	44.80%
/	Divided by 3	**14.93%**

Source:
Input percentages from BACE table tblPenCurvesForProducts.

Microsoft Excel - tblPenCurvesForProducts

File Edit View Insert Format Tools Data Window Help Acrobat

W51 =

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	CustFar	CustAre	CustCnt	ProdFa	ProdAre	ProdCn	ProdEle	UNEZon	Anchor	PenTied	PenAl	Qty	PenPct	PenPct	PenPct	PenPct	PenPct	PenPct	PenPct	PenPct8	PenPct9	PenPct10	Wiza
2	Res	Quintile	Quintile1	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.082	0.124	0.144	0.155	0.16	0.162	0.164	0.1642	0.1645	0.1647	Q1
3	Res	Quintile	Quintile2	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.083	0.125	0.146	0.156	0.161	0.164	0.165	0.1658	0.1661	0.1663	Q2
4	Res	Quintile	Quintile3	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.101	0.151	0.176	0.189	0.195	0.198	0.2	0.2004	0.2008	0.201	Q3
5	Res	Quintile	Quintile4	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.071	0.107	0.124	0.133	0.138	0.14	0.141	0.1417	0.142	0.1421	Q4
6	Res	Quintile	Quintile5	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.038	0.056	0.066	0.071	0.073	0.074	0.075	0.075	0.0751	0.0752	Q5
7	Bus	SOHO	Top	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.14	0.22	0.266	0.293	0.308	0.317	0.322	0.325	0.326	0.327	Top
8	Bus	SOHO	Middle	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.036	0.057	0.069	0.076	0.08	0.082	0.084	0.084	0.085	0.085	Midd
9	Bus	SOHO	Bottom	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.015	0.024	0.029	0.032	0.034	0.035	0.035	0.036	0.036	0.036	Bott
10	Bus	SME/A	ELSE	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.053	0.087	0.109	0.123	0.133	0.139	0.143	0.145	0.147	0.148	SME
11	Bus	SME/B	ELSE	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.041	0.071	0.093	0.109	0.12	0.128	0.134	0.139	0.142	0.144	SME
12	Bus	SME/C	ELSE	PSTN	Local	Account	Subscripti	ELSE	TRUE	FALSE	N	1	0.038	0.066	0.087	0.103	0.114	0.123	0.13	0.135	0.139	0.142	SME
13	Res	ELSE	ELSE	PSTN	LD	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
14	Bus	SOHO	ELSE	PSTN	LD	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
15	Bus	SME/A	ELSE	PSTN	LD	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0.833	0.833	0.833	0.833	0.833	0.833	0.833	0.833	0.833	0.833	
16	Bus	SME/B	ELSE	PSTN	LD	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0.767	0.767	0.767	0.767	0.767	0.767	0.767	0.767	0.767	0.767	
17	Bus	SME/C	ELSE	PSTN	LD	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
18	Res	ELSE	ELSE	Other	VoiceMai	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
19	Bus	SOHO	ELSE	Other	VoiceMai	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
20	Bus	SME/A	ELSE	Other	VoiceMai	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
21	Bus	SME/B	ELSE	Other	VoiceMai	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
22	Bus	SME/C	ELSE	Other	VoiceMai	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0	0	0	0	0	0	0	0	0	0	
23	Res	ELSE	ELSE	Other	LineMaint	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0	0	0	0	0	0	0	0	0	0	
24	Bus	SOHO	ELSE	Other	LineMaint	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0	0	0	0	0	0	0	0	0	0	
25	Bus	SME/A	ELSE	Other	LineMaint	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0	0	0	0	0	0	0	0	0	0	
26	Bus	SME/B	ELSE	Other	LineMaint	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0	0	0	0	0	0	0	0	0	0	
27	Bus	SME/C	ELSE	Other	LineMaint	ELSE	ELSE	ELSE	FALSE	TRUE	N	1	0	0	0	0	0	0	0	0	0	0	
28	Res	ELSE	ELSE	NonSwitc	Internet	DSL	ELSE	ELSE	FALSE	TRUE	Y	1	0.05	0.1	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
29	Bus	SOHO	ELSE	NonSwitc	Internet	DSL	ELSE	ELSE	FALSE	TRUE	Y	1	0.1	0.175	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
30	Bus	SME/A	ELSE	NonSwitc	Internet	DSL	ELSE	ELSE	FALSE	TRUE	Y	1	0	0	0	0	0	0	0	0	0	0	
31	Bus	SME/B	ELSE	NonSwitc	Internet	DSL	ELSE	ELSE	FALSE	TRUE	Y	1	0	0	0	0	0	0	0	0	0	0	
32	Bus	SME/C	ELSE	NonSwitc	Internet	DSL	ELSE	ELSE	FALSE	TRUE	Y	1	0	0	0	0	0	0	0	0	0	0	
33	Res	ELSE	ELSE	NonSwitc	Internet	NonDSL	ELSE	ELSE	FALSE	TRUE	N	1	0	0	0	0	0	0	0	0	0	0	
34	Bus	SOHO	ELSE	NonSwitc	Internet	NonDSL	ELSE	ELSE	FALSE	TRUE	N	1	0	0	0	0	0	0	0	0	0	0	
35	Bus	SME/A	ELSE	NonSwitc	Internet	NonDSL	ELSE	ELSE	FALSE	TRUE	N	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
36	Bus	SME/B	ELSE	NonSwitc	Internet	NonDSL	ELSE	ELSE	FALSE	TRUE	N	1	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
37	Bus	SME/C	ELSE	NonSwitc	Internet	NonDSL	ELSE	ELSE	FALSE	TRUE	N	1	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
38	Res	Quintile	ELSE	PSTN	Local	AccessCl	ELSE	ELSE	FALSE	TRUE	N	1	1	1	1	1	1	1	1	1	1	1	
39	Res	Quintile	ELSE	PSTN	Local	Line	ELSE	ELSE	FALSE	TRUE	N	1	1	1	1	1	1	1	1	1	1	1	
40	Res	Quintile	ELSE	PSTN	Local	Usage	ELSE	ELSE	FALSE	TRUE	N	1	1	1	1	1	1	1	1	1	1	1	
41	Bus	ELSE	ELSE	PSTN	Local	AccessCl	ELSE	ELSE	FALSE	TRUE	N	1	1	1	1	1	1	1	1	1	1	1	
42	Bus	ELSE	ELSE	PSTN	Local	Line	ELSE	ELSE	FALSE	TRUE	N	1	1	1	1	1	1	1	1	1	1	1	
43	Bus	ELSE	ELSE	PSTN	Local	Usage	ELSE	ELSE	FALSE	TRUE	N	1	1	1	1	1	1	1	1	1	1	1	
44																							
45																							
46	Source: Penetration input table in BACE as released in South Carolina.																						
47																							
48																							
49																							
50																							
51																							
52																							

tblPenCurvesForProducts

Ready NUM

Example of Economies of Scope				
		Voice Only	DSL Only	Both Provided Together
	Loop Cost	$20	$20	$20
+	Switching Cost	$10	$0	$10
+	Other Costs	$0	$10	$10
=	Total Costs	$30	$30	$40
	Revenue	$20	$20	$40
=	Profit	($10)	($10)	$0

Residential Customer Acquisition Costs				
	Notes	Voice & DSL	Voice Only	Total
Voice service	(1)	$50-80	$50-80	
Incremental cost for DSL	(2)	$95	$0	
Total Cust. Acq. Cost		$145-175	$50-80	
Pct. Of CLEC's Customers	(3)	15%	85%	
Weighted Cust. Acq Cost		$22-$26	$42-68	$64-94
(1) Source is Exhibit DJA-06, based on Z-Tel and Talk America. (2) Source is Bryant (Voice + DSL = $225, voice only is $130, so incremental cost of DSL is $95). (3) Source is Exhibit DJA-05.				